mathways 3

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mathways 3

revised

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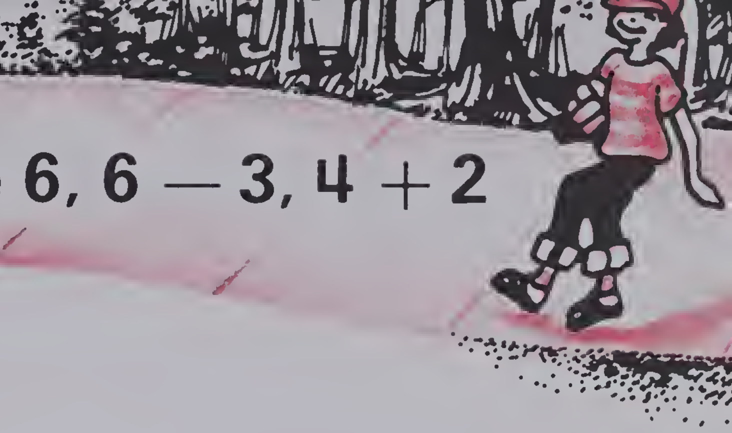
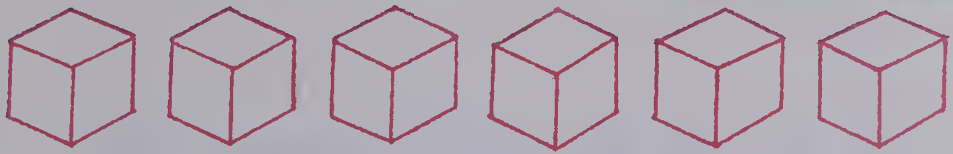
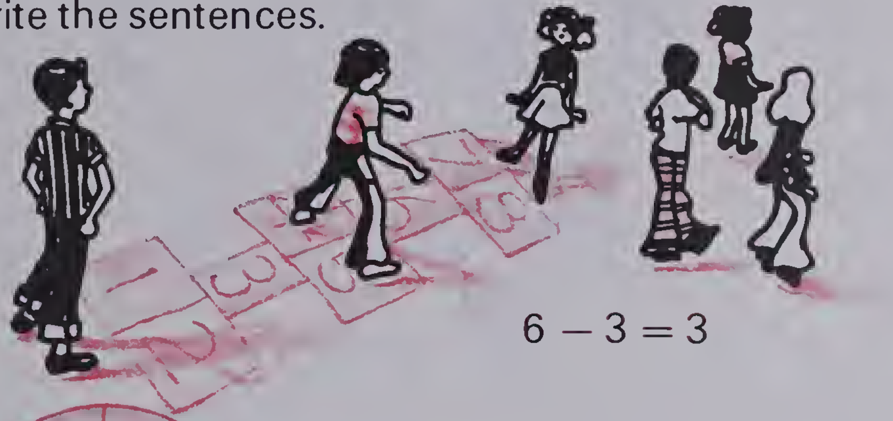


Explore 6, 6 − 3, 4 + 2

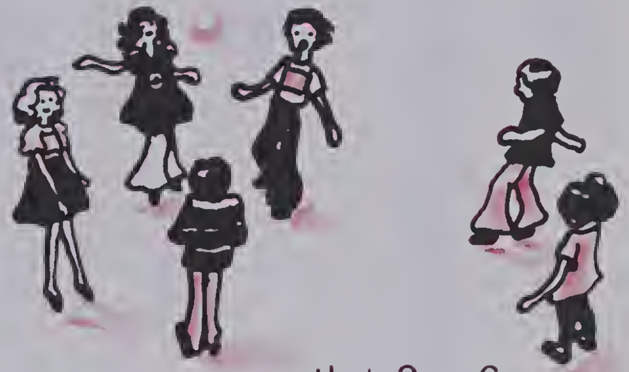


Use a set of 6 blocks.
Move some blocks away from the set.
Write a subtraction sentence to tell what you did.
How many subtraction facts can you show and write?

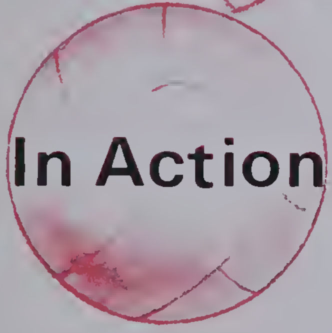
Move the blocks to show addition facts of 6.
Write the sentences.



6 − 3 = 3



4 + 2 = 6



In Action

1. Show and write addition and subtraction facts.
   a) Use 4 blocks.
   b) Use 5 blocks.

2. 1 + 3 = ?
   4 + 1 = ?
   5 + 0 = ?
   2 + 3 = ?
   5 + 1 = ?
   4 + 2 = ?
   0 + 6 = ?
   1 + 5 = ?
   4 − 3 = ?
   5 − 1 = ?
   5 − 0 = ?
   5 − 3 = ?
   6 − 1 = ?
   6 − 2 = ?
   6 − 6 = ?
   6 − 5 = ?
   4 − 1 = ?
   5 − 4 = ?
   5 − 5 = ?
   5 − 2 = ?
   6 − 5 = ?
   6 − 4 = ?
   6 − 0 = ?
   6 − 1 = ?

3. Add.

$\begin{array}{r}1\\2\\\hline\end{array}$ $\begin{array}{r}3\\1\\\hline\end{array}$ $\begin{array}{r}0\\5\\\hline\end{array}$ $\begin{array}{r}3\\2\\\hline\end{array}$ $\begin{array}{r}1\\0\\\hline\end{array}$

$\begin{array}{r}1\\5\\\hline\end{array}$ $\begin{array}{r}3\\3\\\hline\end{array}$ $\begin{array}{r}6\\0\\\hline\end{array}$ $\begin{array}{r}2\\4\\\hline\end{array}$ $\begin{array}{r}0\\3\\\hline\end{array}$

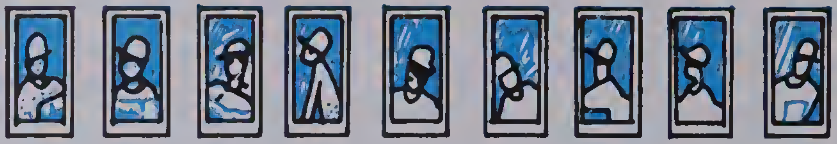
4. Subtract.

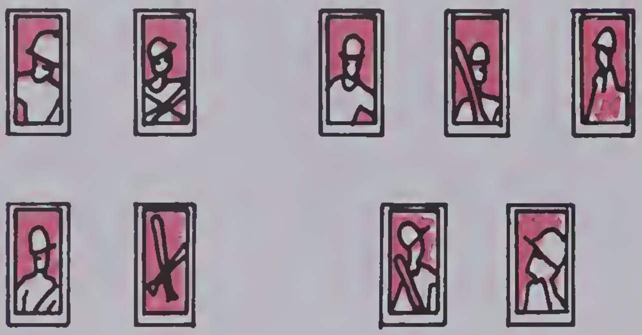
$\begin{array}{r}3\\2\\\hline\end{array}$ $\begin{array}{r}4\\1\\\hline\end{array}$ $\begin{array}{r}5\\3\\\hline\end{array}$ $\begin{array}{r}5\\4\\\hline\end{array}$ $\begin{array}{r}4\\4\\\hline\end{array}$

$\begin{array}{r}6\\1\\\hline\end{array}$ $\begin{array}{r}6\\6\\\hline\end{array}$ $\begin{array}{r}6\\4\\\hline\end{array}$ $\begin{array}{r}6\\0\\\hline\end{array}$ $\begin{array}{r}3\\1\\\hline\end{array}$

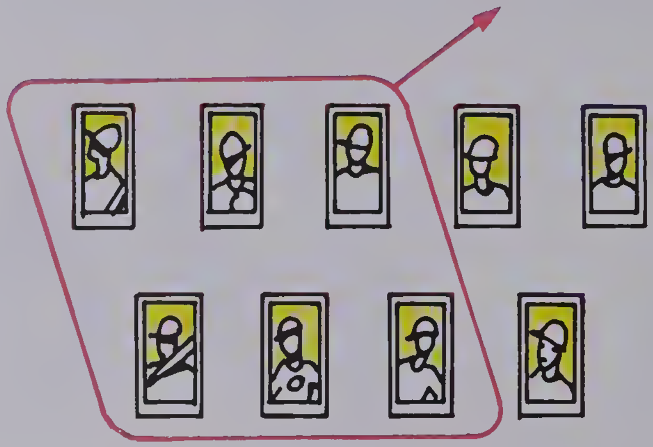
Explore 9, 4 + 5, 9 − 6

Use a set of 9 counters.
Show addition and subtraction facts.
Write the sentences.





4 + 5 = 9



9 − 6 = 3

In Action

1. Use 7 counters.
   Show addition and subtraction facts.
   Write the sentences.

2. Find addition and subtraction facts of 8.

3. Subtract.

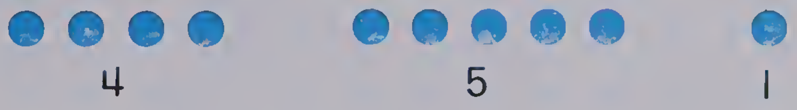
7	7	7	8	8	8
5	0	3	8	5	4
8	9	9	9	9	9
7	2	6	1	9	5

4. 1 + 6 = ? 6 + 1 = ?
   3 + 4 = ? 4 + 3 = ?
   2 + 6 = ? 6 + 2 = ?
   1 + 7 = ? 7 + 1 = ?
   3 + 6 = ? 6 + 3 = ?
   4 + 5 = ? 5 + 4 = ?
   0 + 9 = ? 9 + 0 = ?
   1 + 8 = ? 8 + 1 = ?

5. A baseball team has 9 players.
   There are 3 outfielders.
   How many infielders are there?

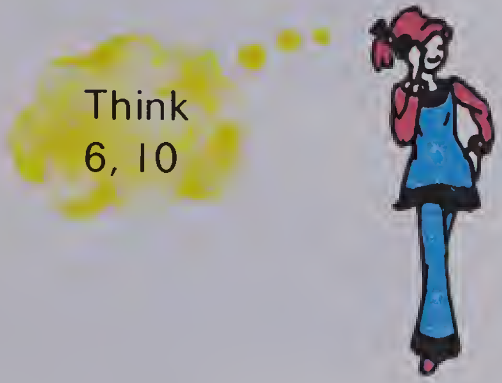
Explore 10, $\begin{array}{r}4\\5\\1,\\\hline\end{array}$ $\begin{array}{r}6\\2\\2\\\hline\end{array}$

Use a set of 10 counters.
Make 3 sets with the counters.
How many counters are in each set?



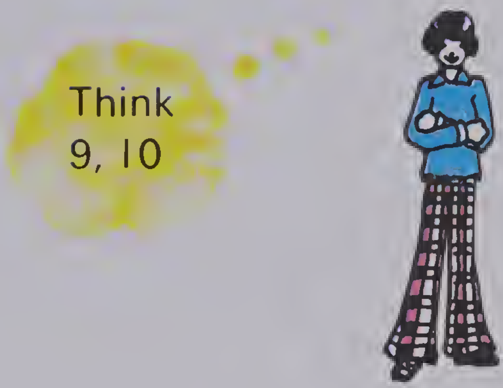
Write the numerals in a column.
Add, like this.

$\begin{array}{r}4\\5\\1\\\hline 10\end{array}$



or

$\begin{array}{r}4\\5\\1\\\hline 10\end{array}$



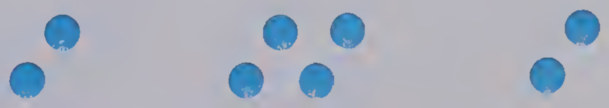
You don't need to think, "1 add 5 is 6, 6 add 4 is 10".
Show 3 other sets with your counters.
Write the numerals in a column.
Add.
How many ways can you do this?

In Action

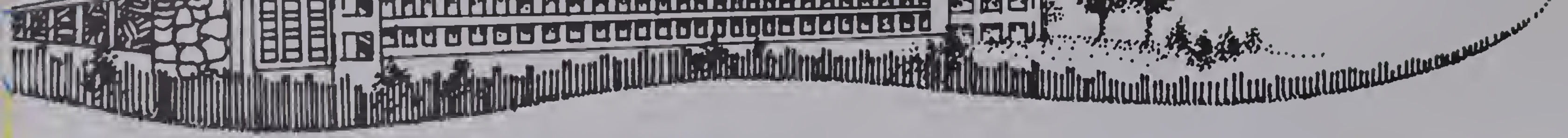
1. Make a complete chart in your notebook.

+	0	1	2	3	4	5
0						
1						
2					6	
3		4				
4						
5				8		

2. Use your counters.
   Find ways to show 8 with 3 sets.
   Write the numerals in a column.
   Add.

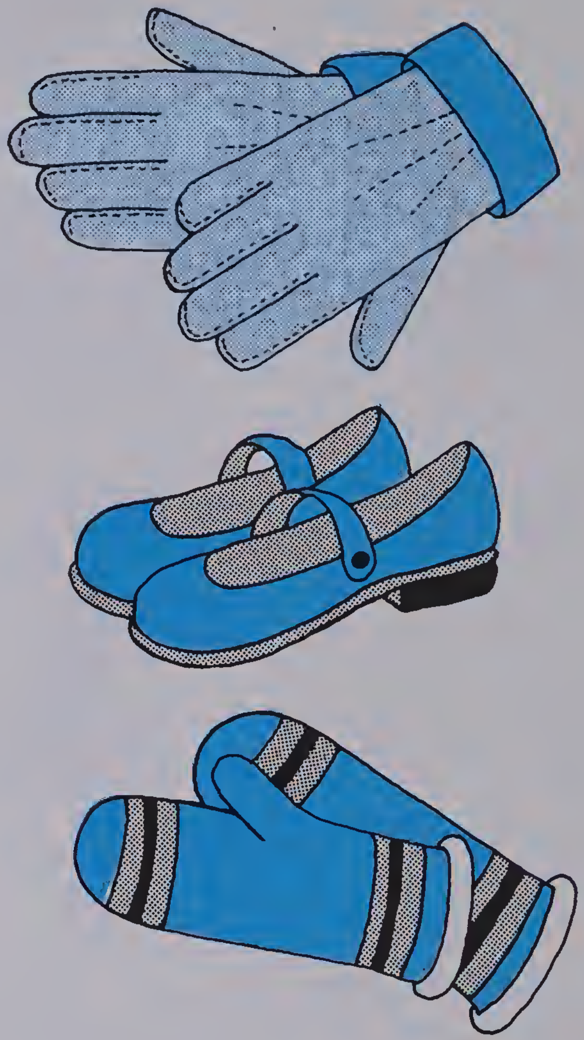


3. Show 9 with 3 sets.
   Write the numerals and add.



Explore Number Pairs

6 4



What other number do you think of?

If I **add**, I think, "10".

Add	Answer
(6,4)	10

I don't need to think, "6 add 4 is 10".

If I **subtract**, I think, "2".

Subtract	Answer
(6,4)	2

I don't need to think, "6 subtract 4 is 2".
Write number pairs.
Will you add or subtract?
Write the answers.

In Action

1. Here are some number pairs for 10.

Add	Answer
(0,10)	10
(1,9)	10
(2,8)	10

Subtract	Answer
(10,10)	0
(10,9)	1
(10,8)	2

Complete the patterns for 10.

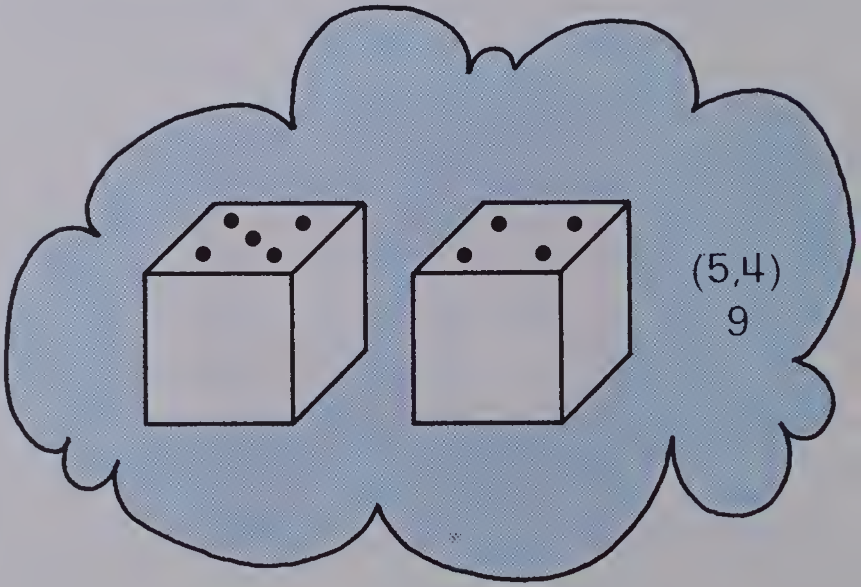
2. Make number pair patterns for 6 and 8.

3. Complete the charts in your notebook.

Subtract	Answer
(9,8)	
(9,3)	
(7,4)	
(5,2)	

Add	Answer
(0,7)	
(7,2)	
(3,6)	
(1,4)	

4. Play this game with a partner.
Roll 2 ordinary dice.
Write a number pair using the numerals on the dice.
Add.



In the Schoolyard

9 children were playing soccer.
4 went to play another game.
How many children were left?

$9 - 4 = 5$
5 children were left.

1. 7 children were playing hopscotch.
   3 children were skipping.
   How many children were there?

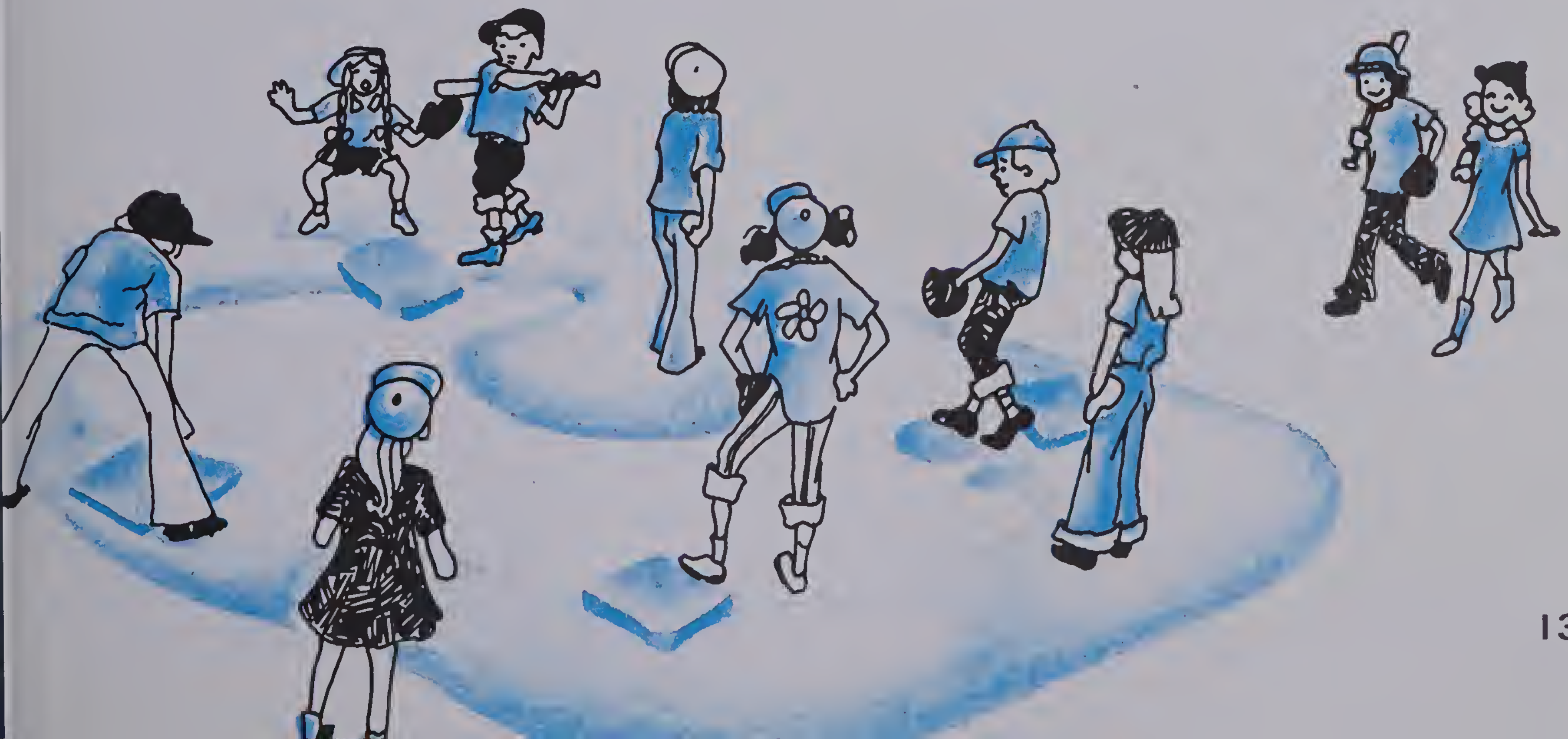
2. 2 children were playing soccer.
   7 more children joined them.
   How many children were playing soccer?

3. 10 children were playing dodgeball.
   5 went "out".
   How many were left playing dodgeball?

4. The baseball team had 3 bats,
   4 gloves, and 2 balls.
   How many pieces of equipment
   were there?

5. 9 children were walking home from school.
   4 turned at the corner.
   How many children went on?

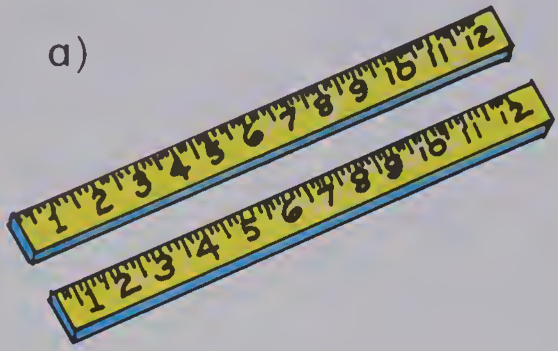
6. Write a story problem about the picture.



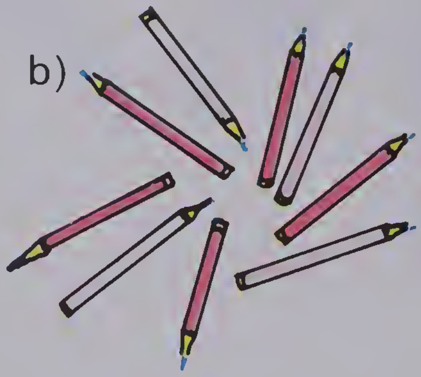
In Action

1. Draw pictures to show 1 more.
Write the numerals.

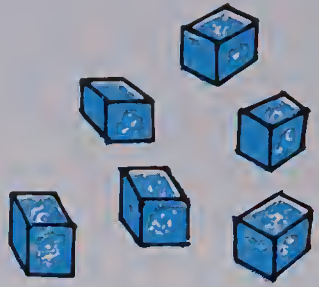
a)



b)

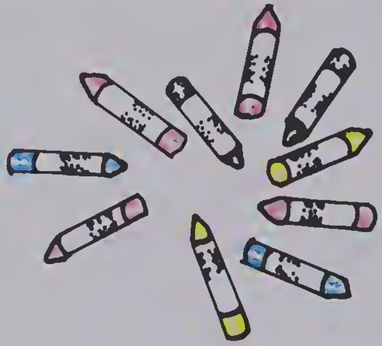


c)

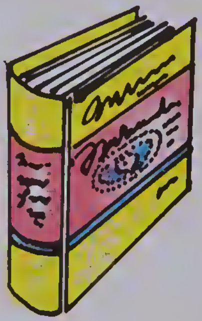


2. Draw pictures to show 1 fewer.
Write the numerals.

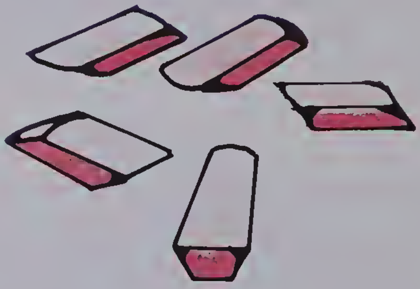
a)

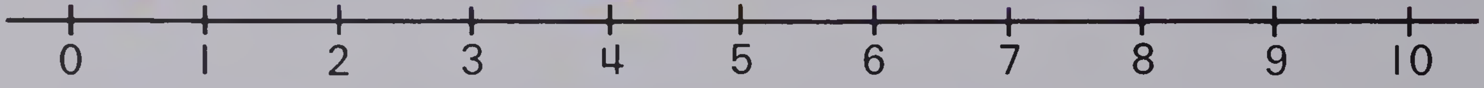


b)



c)





3. List numbers that are less
than these numbers.
The number line will help you.

a) 7 b) 2 c) 4 d) 9

4. List numbers that are greater
than these numbers.

a) 0 b) 3 c) 8 d) 5

Greater than $>$
Less than $<$

"My nose points to the smaller number!"

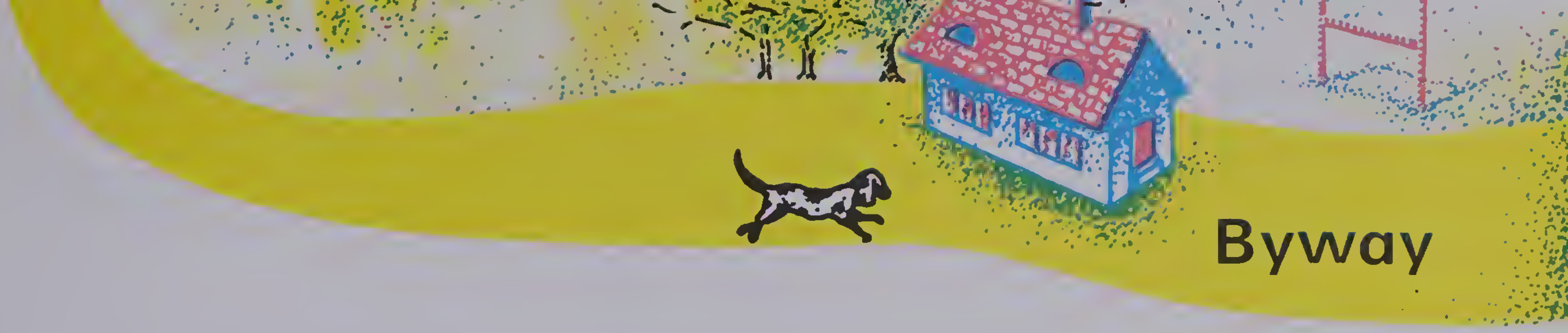
$4 > 1$ $3 < 5$
$7 > 3$ $1 < 10$

5. Complete the sentences.
Use the number line.

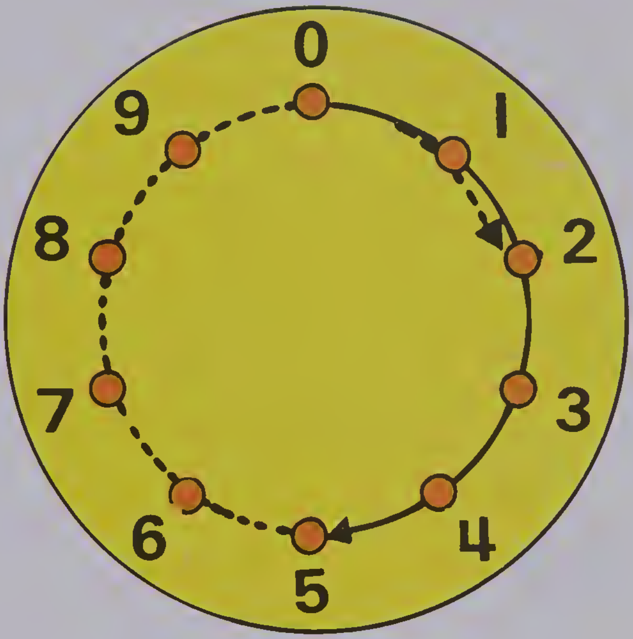
a) $10 > ?$
b) $1 > ?$
c) $? > 4$
d) $? > 7$
e) $0 < ?$

f) $5 < ?$
g) $? < 3$
h) $? < 9$
i) $3 > ?$
j) $9 < ?$

k) $10 < ?$
l) $1 < ?$
m) $? < 7$
n) $q > ?$
o) $? < 1$



A Circular Number Line



Start at 0 and count clockwise.
How many steps make 1 complete circle?
How many make 2 complete circles?

How can we find 5 + 7?
Start at 0 and step off 5 "spots" clockwise.
Then step off 7 more "spots".

How many complete circles did you make?	How many more steps did you take?
1	2

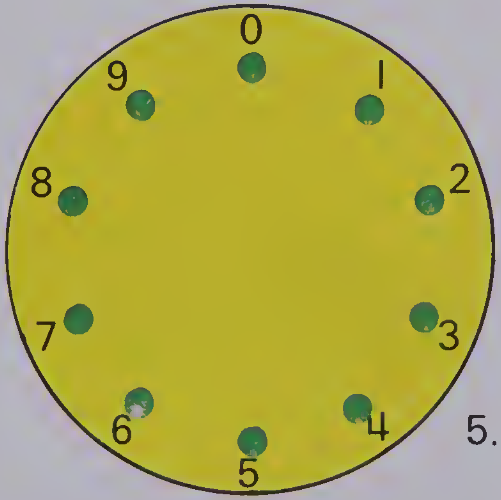
12

The answer is 12.

1. 3 + 8
   How many complete circles?
   How many more steps?
   What is the answer?

2. 6 + 7
   How many complete circles?
   How many more steps?
   What is the answer?

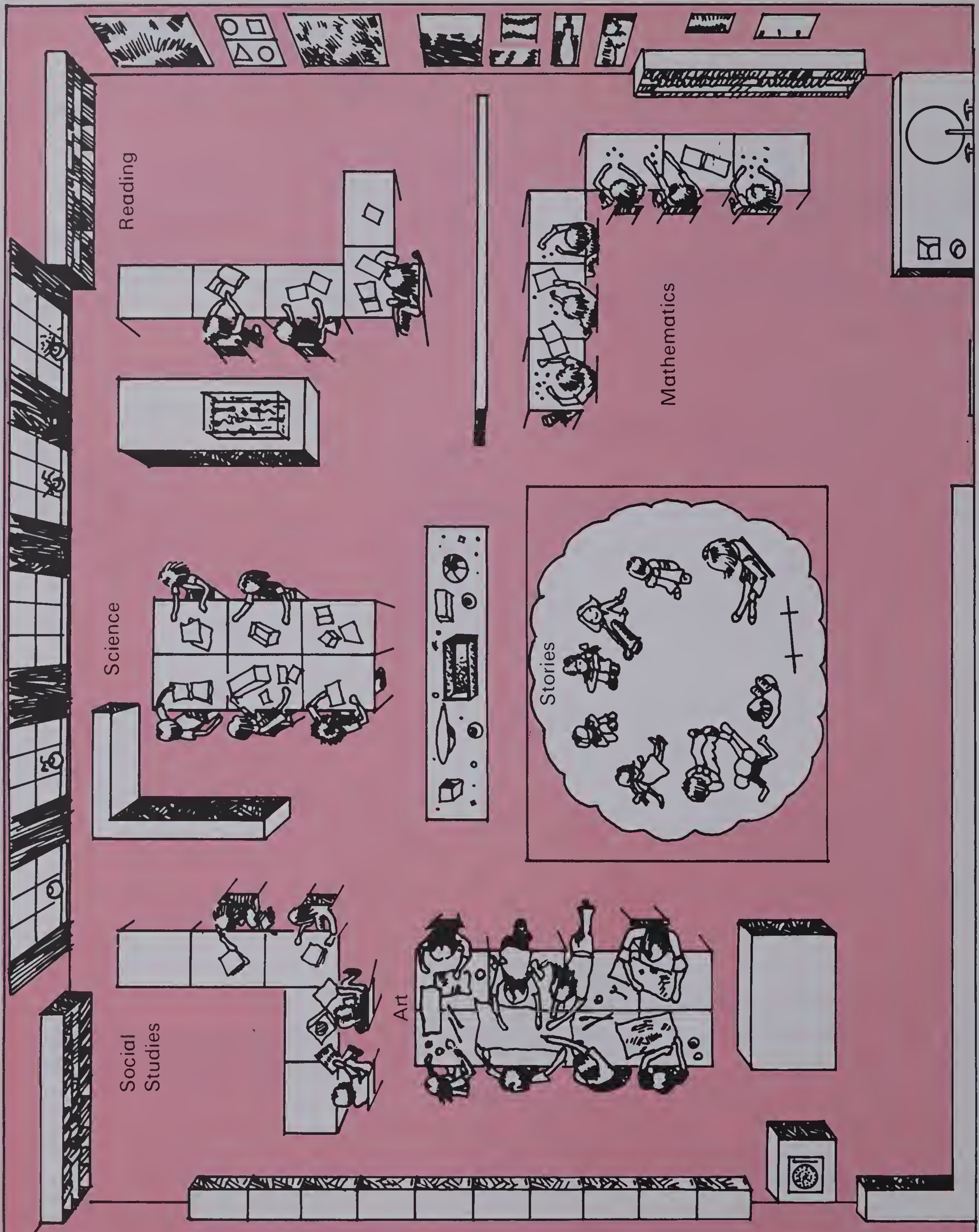
3. 9 + 6
   How many complete circles?
   How many more steps?
   What is the answer?



4. Now try these.
   a) 7 + 4 + 3
   b) 7 + 7 + 7
   c) 5 + 9 + 8
   d) 9 + 7 + 5

5. How could you use the circular number line for subtraction?

6. Try your idea.
   a) 9 − 4
   b) 10 − 3
   c) 7 + 8 − 5
   d) 8 + 9 − 5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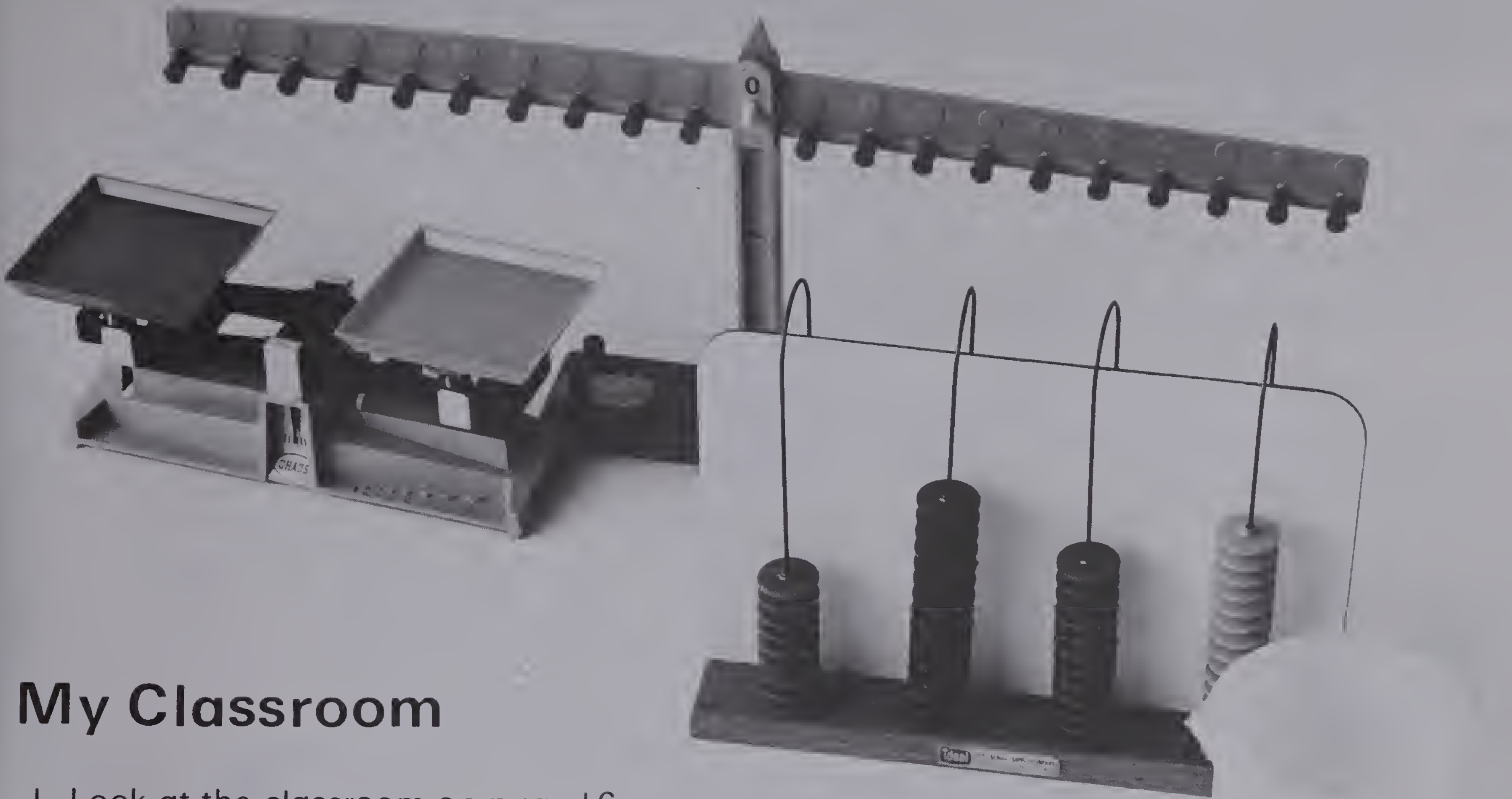
Stories
Social Studies
Art



My Classroom

1. Look at the classroom on page 16.
   How many children are there?

2. How many groups of children are there?

3. a) What are the groups of children doing?
   b) Which group would you like to be in first?

4. a) Which group has the most children in it?
   b) Which group has the fewest children in it?

5. How many more children are doing art than are doing social studies?

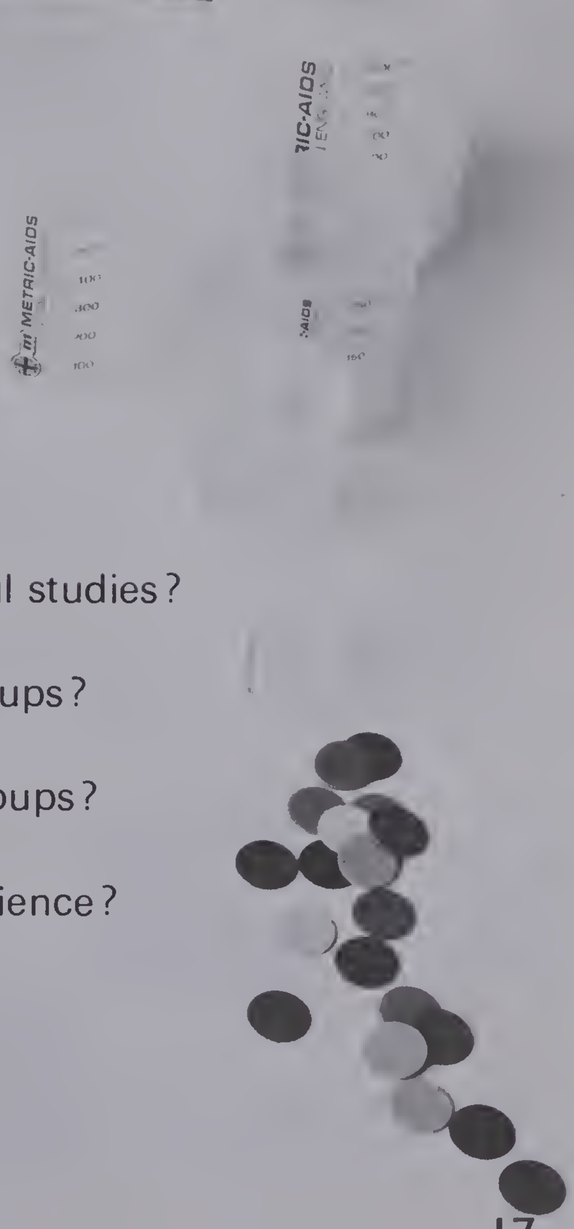
6. How many children are in the reading and mathematics groups?

7. How many children are in the social studies and science groups?

8. How many more children are telling stories than are doing science?

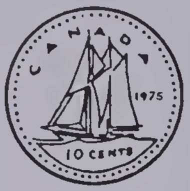
9. a) How many bookcases are in the classroom?
   b) How many lockers are there?

10. Tell a story about your classroom.



Explore 2-Digit Numbers

How many cents are in 1 dime?



Use 10 dimes to count to 100.
Which numbers did you use?
You counted by tens.

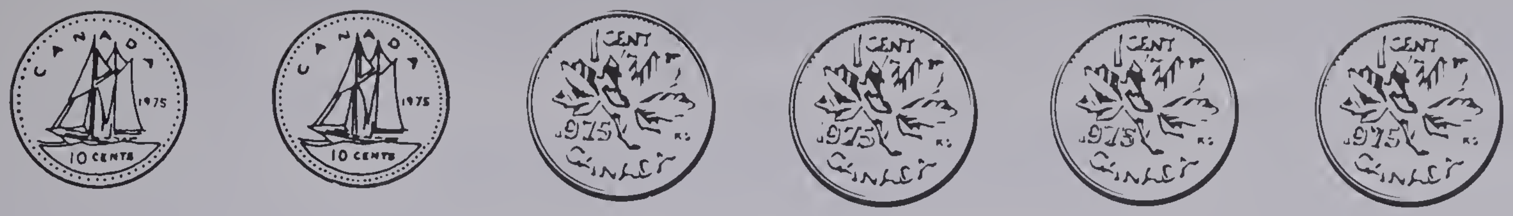
91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Complete the pattern.

2, 12, 22, . . ., 92

Which column of numbers did you use?
How are the numerals alike?

Pick a number from 1 to 10.
Find the number in the chart.
Move up the column.
What are the numbers?
How did you count?



24¢
How many dimes?
How many pennies?
How many cents altogether?

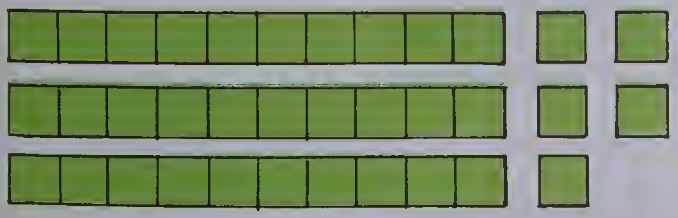
24

This numeral tells the number of tens. This numeral tells the number of ones.

meaning → 24 means 2 tens and 4
long form → 24 = 20 + 4

In Action

1. Count by tens from 7, 19, 23, 36, 48, 51.
   Use the chart on page 18.
2. Use dimes and pennies.
   Show 15¢, 29¢, 43¢, 72¢. 10¢ 1¢
3. What is the number?



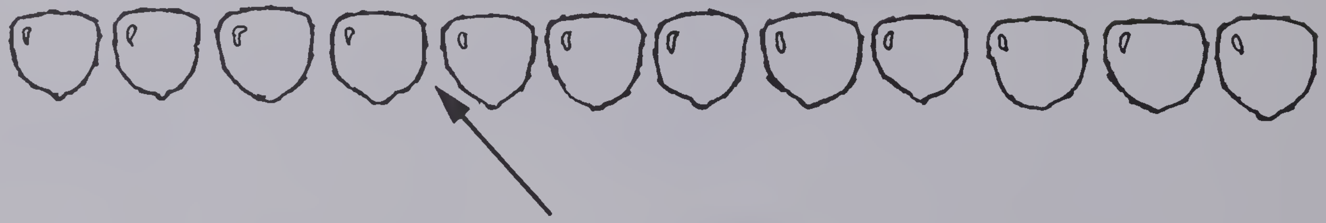
How many tens?
How many ones?

4. Use 10-strips and 1-strips.
   Show 17, 38, 46, 73.
   Write the meaning of the numbers.
5. Complete the chart in your notebook.

Number	Number of tens	Number of ones
18		
63		
84		
	2	5
	9	3
	6	6

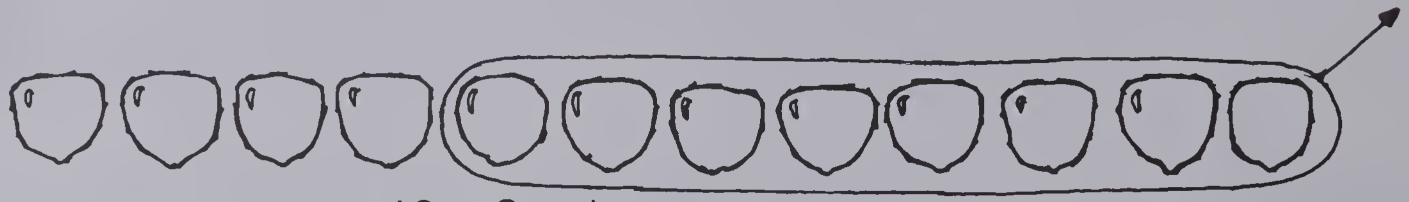
Explore 12, 1 ten and 2, 10 + 2

Use 12 counters and a pointer. (A pencil will do.)



4 + 8 = 12

Move the pointer to show other addition facts.
Write the sentences.



12 − 8 = 4

Change the loop to show other subtraction facts.
Write the sentences.

In Action

1. Use 11 counters.
   Show addition and subtraction facts.
   Write the sentences.

2. Add.
   (12,0) 12 + 0 = ?
   (11,1) 11 + 1 = ?
   (10,2) 10 + 2 = ?
   Complete the pattern.

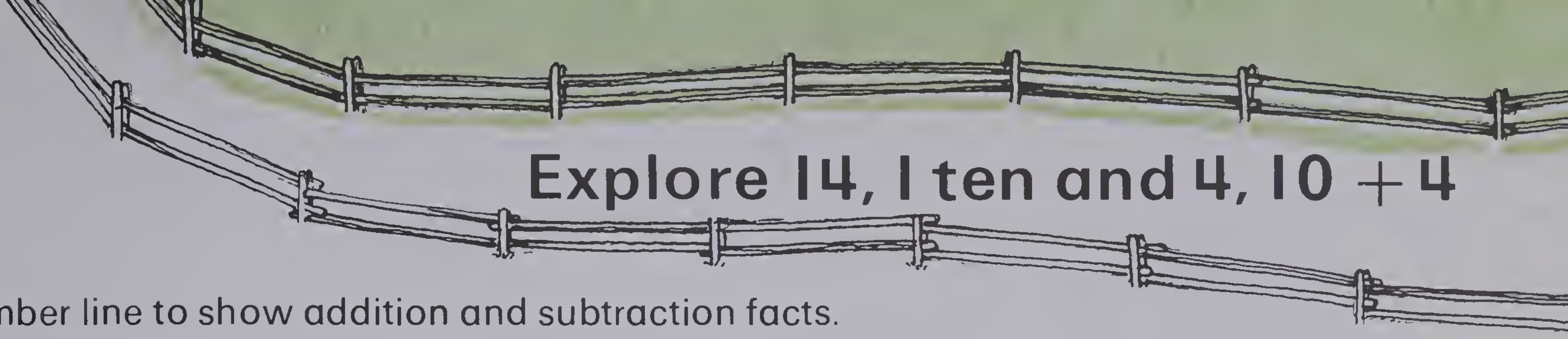
3. Subtract.
   (11,0) 11 − 0 = ?
   (11,1) 11 − 1 = ?
   (11,2) 11 − 2 = ?
   Complete the pattern.

4. Subtract.
   (8,0) 8 − 0 = ?
   (8,1) 8 − 1 = ?
   (8,2) 8 − 2 = ?
   Complete the pattern.

5. Add.
   (10,0) 10 + 0 = ?
   (9,1) 9 + 1 = ?
   (8,2) 8 + 2 = ?
   Complete the pattern.

6. Complete the chart in your notebook.

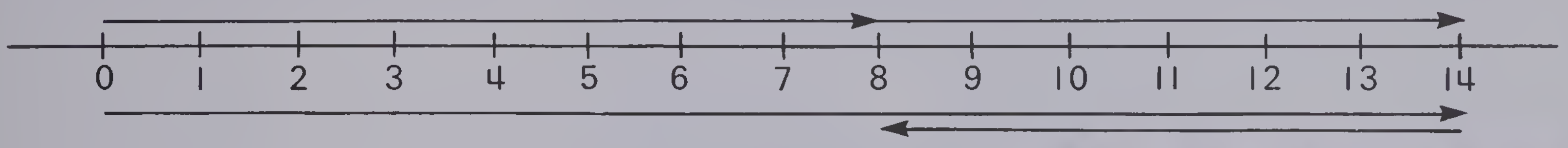
Addition Sentence	Subtraction Sentence
11 + 1 = ?	12 − 1 = ?
7 + 4 = ?	11 − 4 = ?
3 + 9 = ?	
	11 − 6 = ?
	12 − 6 = ?
8 + 3 = ?	
2 + 10 = ?	
	11 − 8 = ?
	12 − 4 = ?
4 + 8 = ?	



Explore 14, 1 ten and 4, 10 + 4

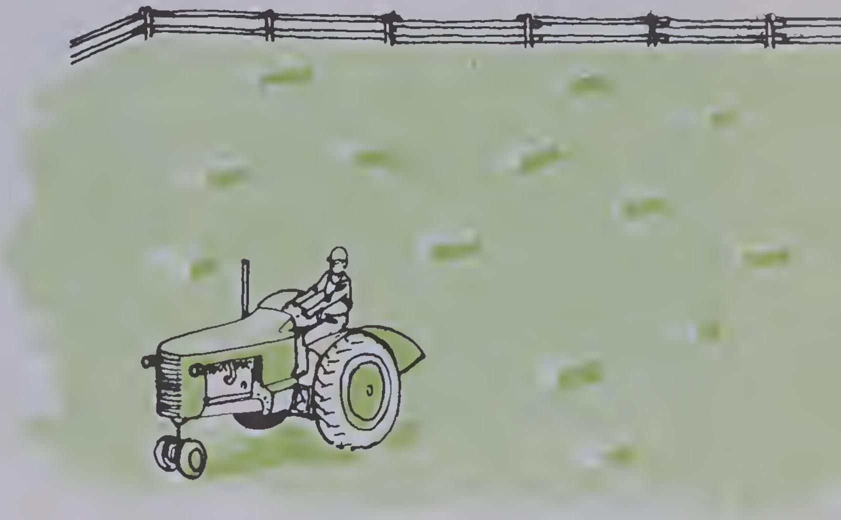
Use a number line to show addition and subtraction facts.

8 + 6 = 14



14 − 6 = 8

Change the arrows to show other facts of 14.
Write the sentences.



In Action

1. Use your *mathways* number line to show facts of 13.
   Write the sentences.

2. Subtract.
   Think each answer without saying a subtraction sentence.

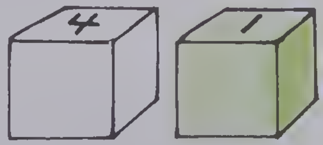
11	11	12	12	13	13	13	14	14	14
5	7	10	3	11	6	3	2	10	14

3. Add.

3	5	6	7	0	7	10	4	8	9	9	11
4	2	2	2	11	1	2	7	3	1	2	1
4	4	4	3	2	5	1	3	3	4	2	2

Think
8, 11

4. Work with a friend.
   Use 2 dice—one colour for tens and another colour for ones.
   Write each numeral, its meaning, and the long form.



41
4 tens and 1
41 = 40 + 1

Retrace Your Steps

1. Complete the chart in your notebook.

Number Pair	Operation	Answer
(13,1)	add	
(9,4)	add	
(0,13)	add	
(14,12)	subtract	
(12,4)	subtract	
(14,7)	subtract	

2. Subtract.
You don't need to say subtraction sentences.

14	13	14	12	14	12
13	10	3	2	11	11

13	12	11	13	12	11
11	10	10	12	9	9

3. Add.
Try not to say addition sentences.

3	1	6	1	3	3
8	9	1	6	1	6
2	2	6	3	8	2

4. I am thinking of a number.
If you subtract 9, you'll get 5.
What's my number?
Play this game with a partner.

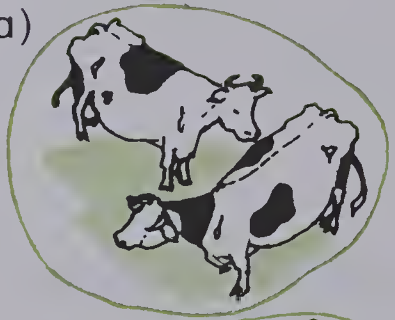
5. Complete.

a) $5 + 3 + 4 = ?$
b) $3 + 7 + 1 = ?$
c) $9 + 3 + 2 = ?$
d) $3 + 5 + 6 = ?$
e) $4 + 5 + 4 = ?$
f) $4 + 6 + 2 = ?$
g) $1 + 8 + 5 = ?$
h) $2 + 6 + 5 = ?$

6. Complete.

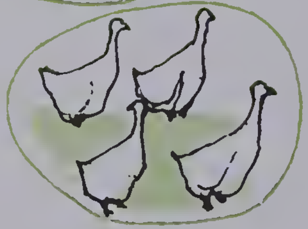
a) $12 - 6 - 3 = ?$
b) $14 - 4 - 4 = ?$
c) $13 - 6 - 2 = ?$
d) $10 - 7 - 1 = ?$
e) $11 - 5 - 1 = ?$
f) $13 - 3 - 7 = ?$
g) $14 - 5 - 3 = ?$
h) $12 - 5 - 2 = ?$

7. a)



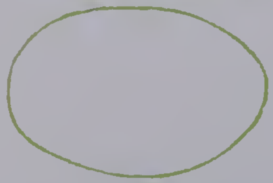
Add 11. Subtract 5.
How many?
You don't need to count.
Start 2.
Think 13, 8.
Write 8.

b)



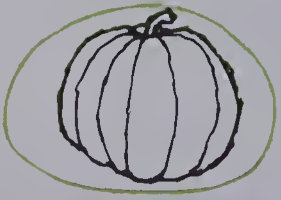
Add 7. Subtract 9.

c)



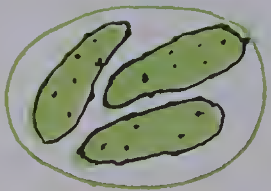
Add 14. Subtract 8.

d)

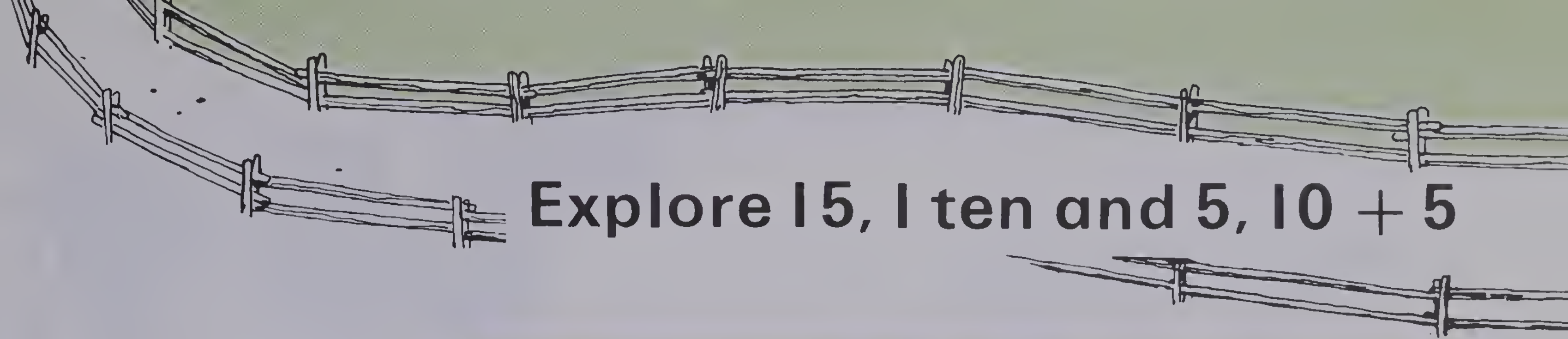


Add 12. Subtract 4.

e)



Add 9. Subtract 5.



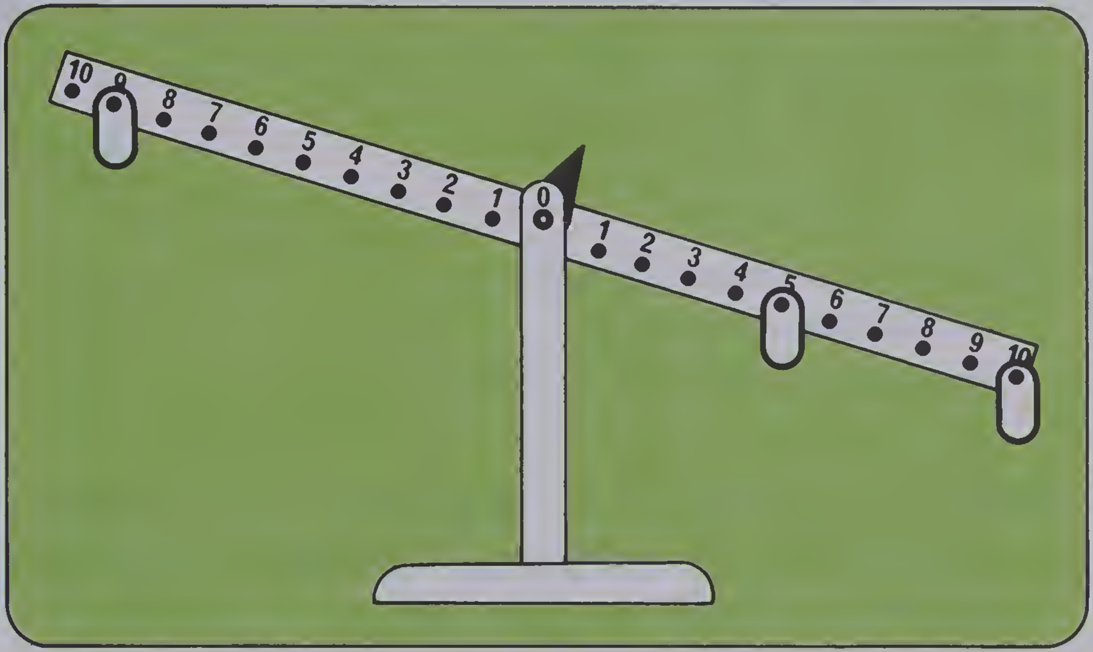
Explore 15, 1 ten and 5, 10 + 5

A balance beam shows addition and subtraction facts.

Find $9 + ? = 15$ or
$15 - ? = 9$.

Show 9 on the left side of the beam and 10 + 5 on the right side.

What number must we add to the left side to make the beam balance?



In Action

1. Complete the chart in your notebook.

Number Pair	Operation	Answer
(2,9)	add	
(12,1)	add	
(12,7)	subtract	
(11,3)	subtract	
(6,9)	add	
(15,0)	subtract	
(11,4)	add	
(15,8)	subtract	

2. $9 + n = 14$
What number is n?
$n = 5$

$13 - k = 11$
What number is k?
$k = 2$

Solve.
Your *mathways* number line will help you.

a) $15 - m = 13$
$m = ?$

b) $3 + p = 14$
$p = ?$

c) $13 - a = 4$
$a = ?$

d) $f + 5 = 11$
$f = ?$

e) $12 - w = 0$
$w = ?$

f) $14 - y = 10$
$y = ?$

g) $c + 7 = 15$
$c = ?$

h) $2 + p = 14$
$p = ?$

On the Farm

I saw 7 cows and 8 calves.
How many cattle did I see?

7 + 8 = 15
I saw 15 cattle.

1. Mrs. Fischer has 15 sheep.
   She sheared 10 of them.
   How many sheep still have their wool?

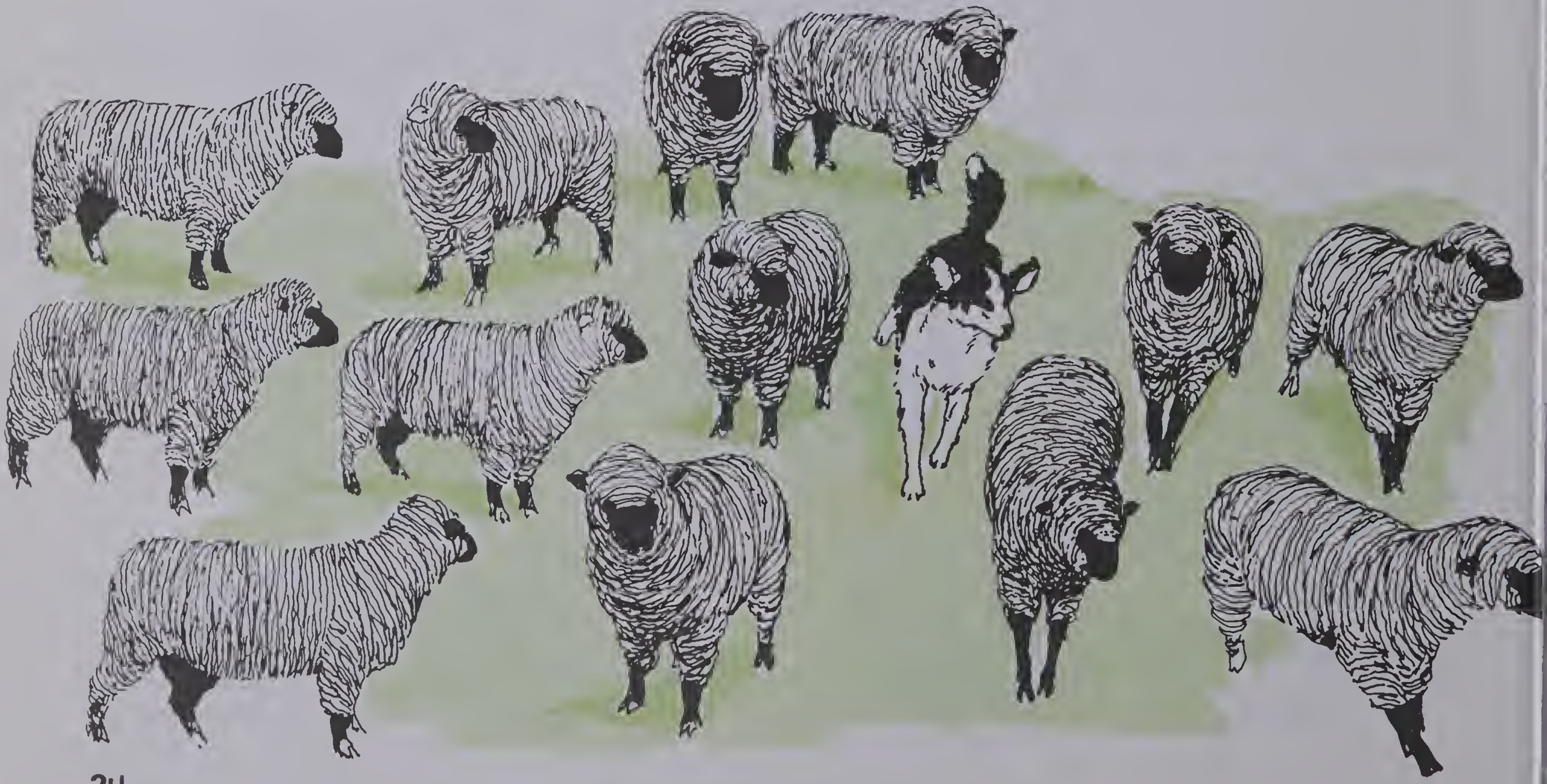
2. Mr. Potter has 6 chickens in the barn,
   3 in the barnyard, and 5 near the house.
   How many chickens does he have?

3. There were 13 pigs in the sty.
   8 ran into the shed.
   How many are left?

4. The farmer sold some apples for 6 dimes
   and 4 pennies.
   How much did he receive?

5. I sold some eggs for 9 dimes and 7 pennies.
   How much did I receive?

6. Write a story problem about the picture.

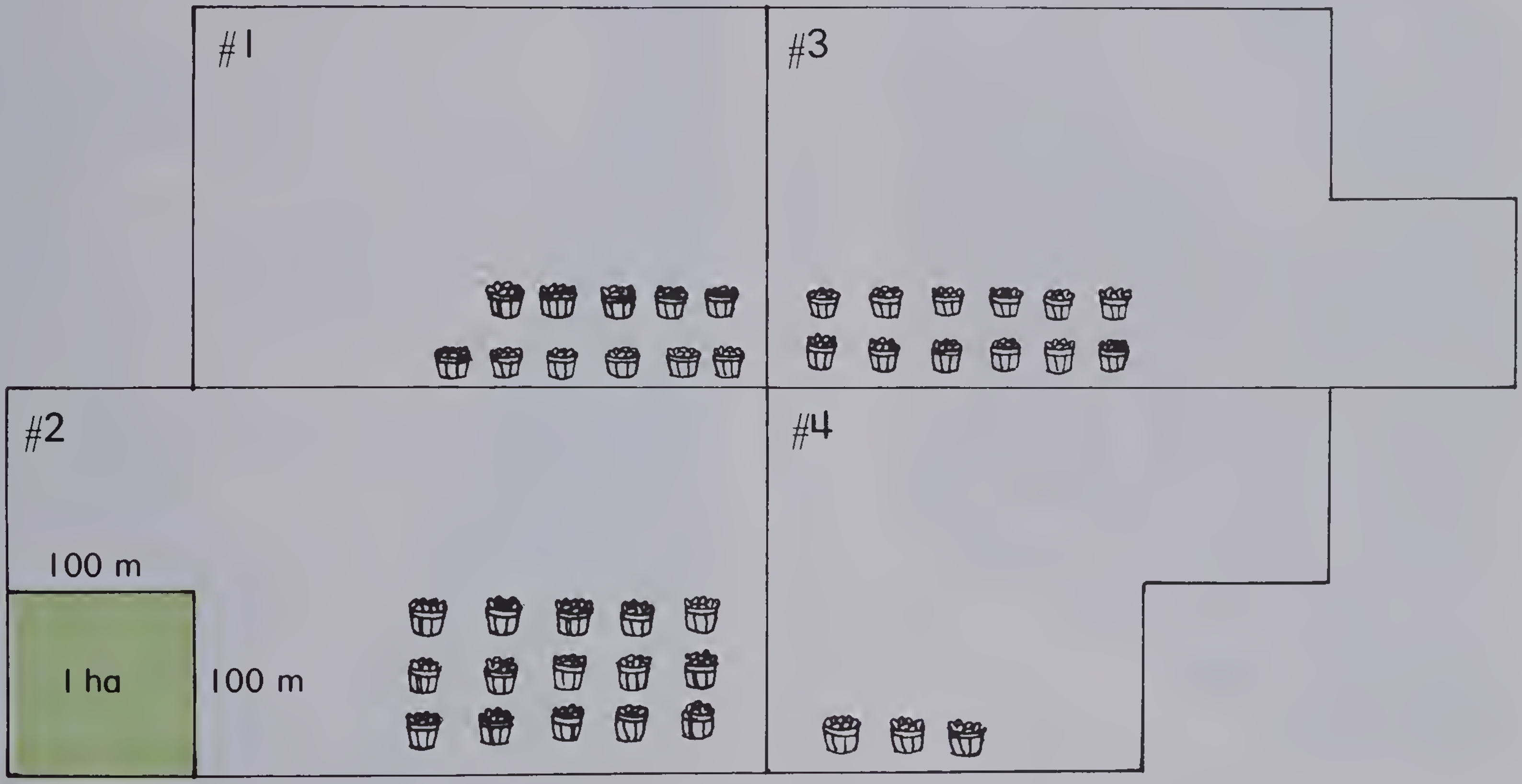


The Potatoes of Prince Edward Island

Field	Number of Hectares
#1	6
#2	8
#3	7
#4	5

Prince Edward Island is famous for its potatoes.

This farmer has 4 fields of potatoes.
The fields are measured in hectares (ha).
A hectare is a large area.
The chart shows how large the farmer's fields are.



1. a) Which field is the largest?
   b) Which field is the smallest?

2. a) How many hectares of land are in fields #1 and #2?
   b) How many are in fields #3 and #4?

3. How many more hectares of land are in fields #1 and #2 than are in fields #3 and #4?

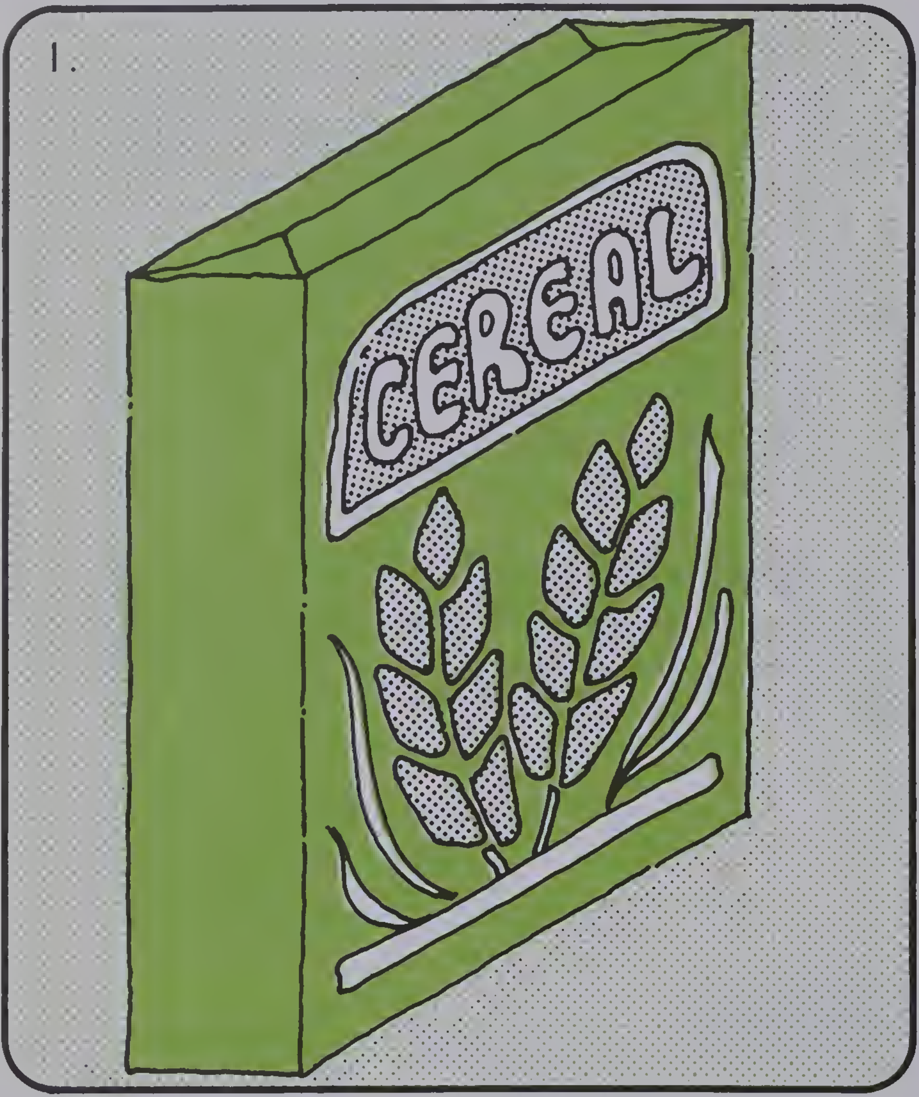
4. Look at the picture.
   How many baskets of potatoes do you see?
   Write the meaning of that number.

5. Write addition and subtraction sentences about the baskets of potatoes.

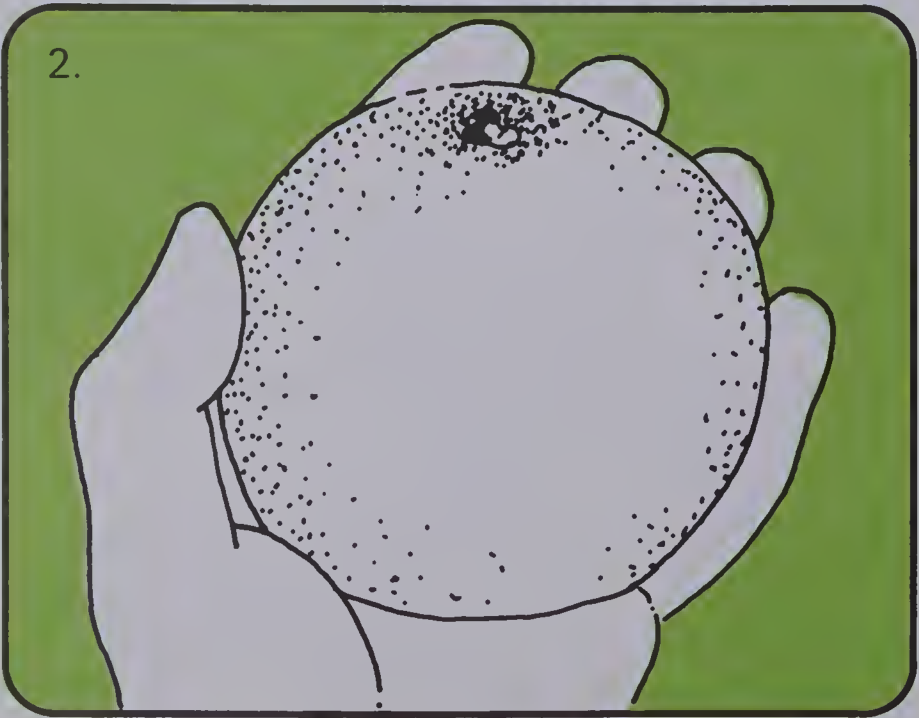
Explore Geometry in Life

Look at each picture. Make a list of all the geometric models you can see.

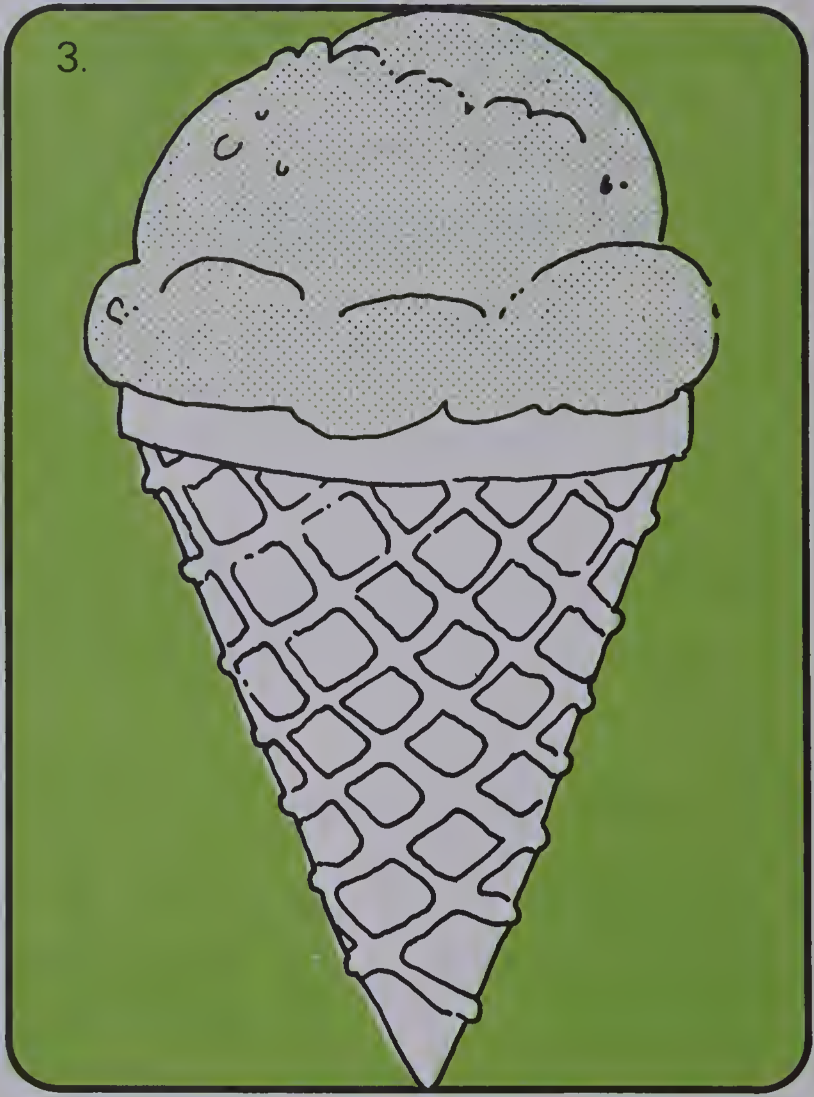
1.



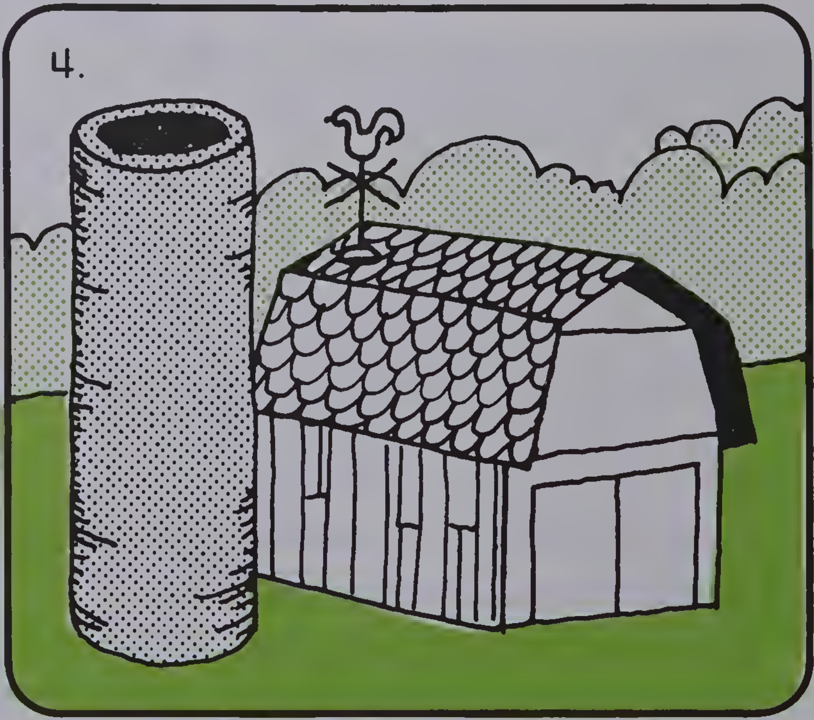
2.



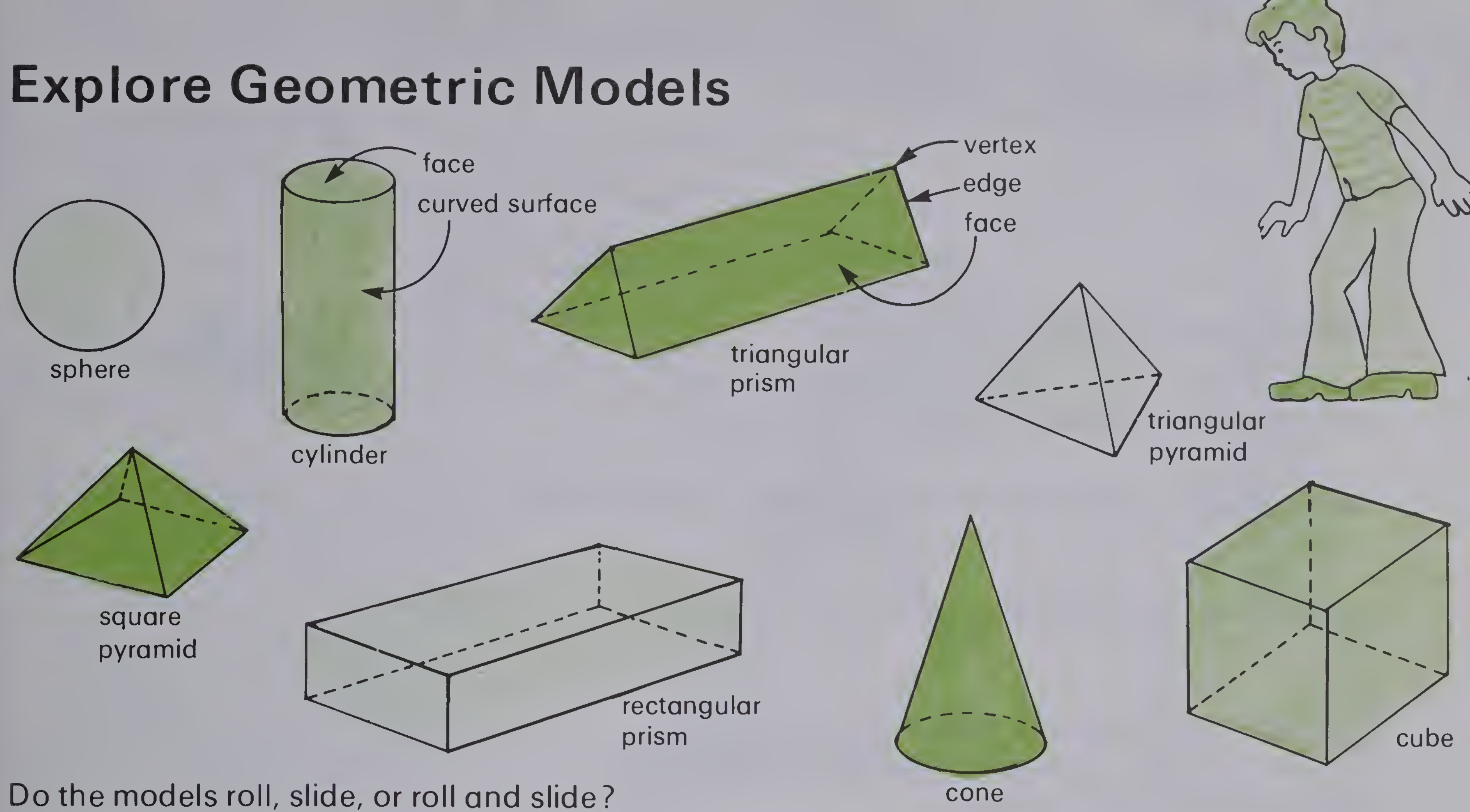
3.



4.



Explore Geometric Models


sphere
face
curved surface
cylinder
vertex
edge
face
triangular prism
triangular pyramid
square pyramid
rectangular prism
cone
cube

Do the models roll, slide, or roll and slide?

In Action

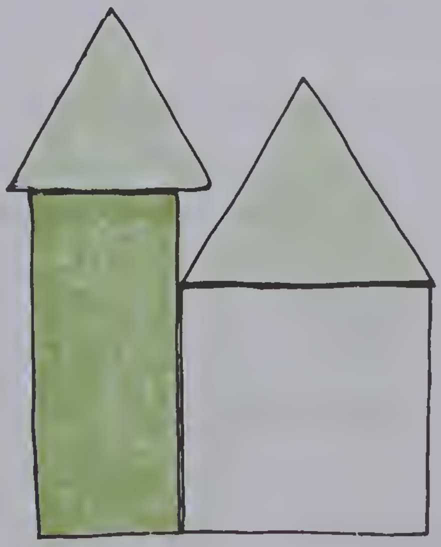
1. Look at each model carefully.
   Make a chart in your notebook.

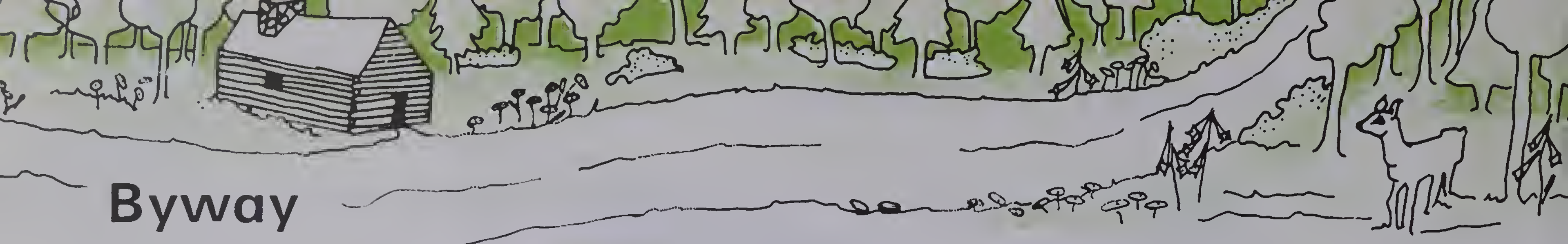
Model	Number and Shape of Faces	Number of Curved Surfaces	Number of Edges	Number of Vertices
cone	1 circle	1	0	1

2. Sort the models by the shapes of their faces.
   Which models have square faces?
   Which have circular faces? And so on.

3. Draw around the faces of models to make a picture.
   Name your picture.
   Colour like shapes the same colour.

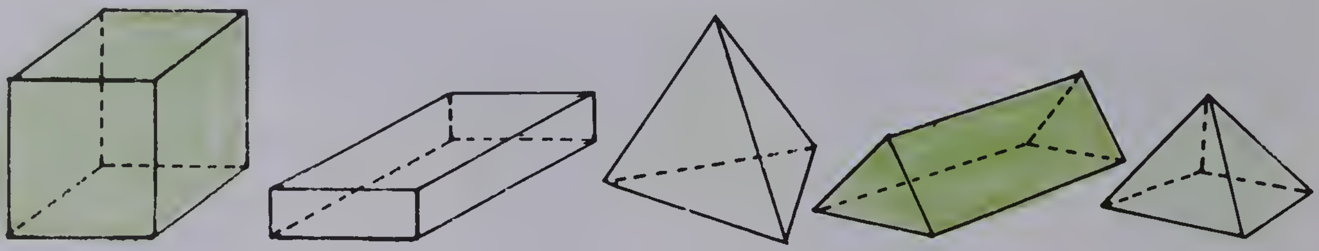
4. Look around your classroom.
   List any geometric models and shapes you see.





Byway

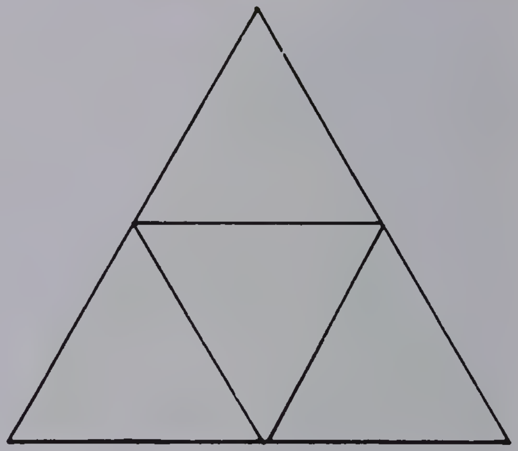
Making Models



Pick 1 of these models.

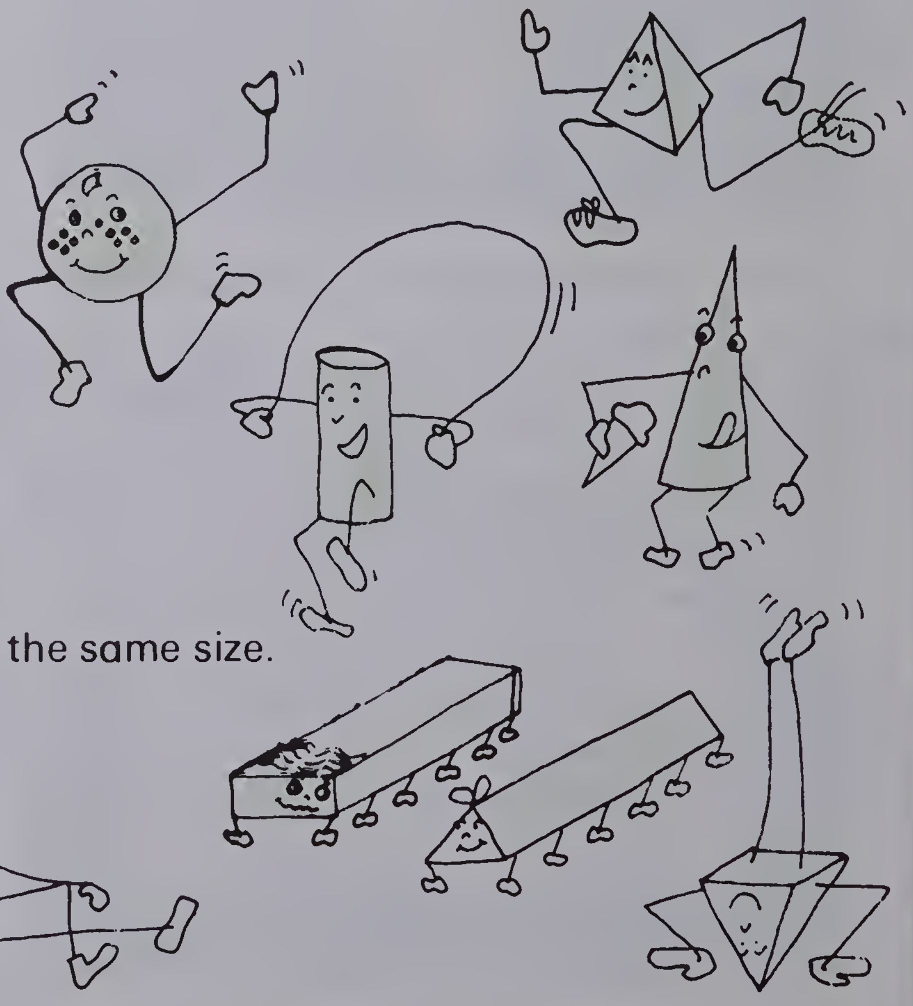
Draw around all the faces to make a pattern for the model.

A pattern for a triangular pyramid looks like this.



Cut along the edges of your pattern.
Fold the pattern and tape it to make your own model.
Make other models.

Who Am I?

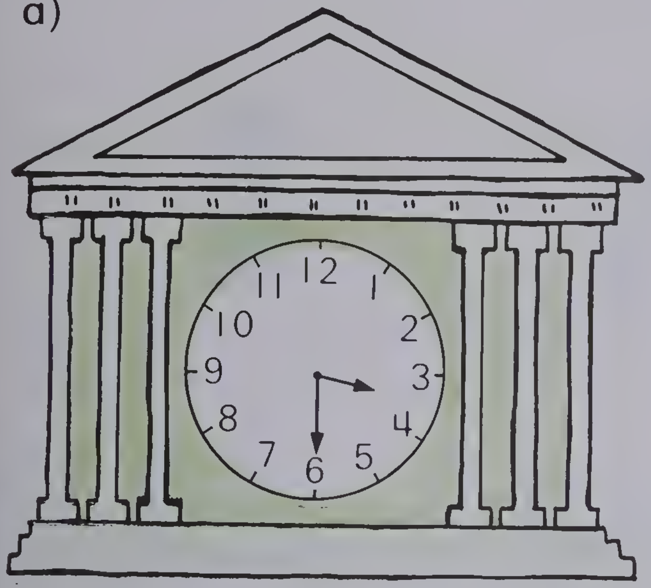


1. I have 6 faces all the same size and shape.
2. I have no faces at all!
3. I can roll and slide.
4. I have 4 faces all the same size and shape.
5. My faces are all the same shape, but not all the same size.
6. I have 9 edges.
7. I have only 1 vertex.
8. I have 5 vertices.

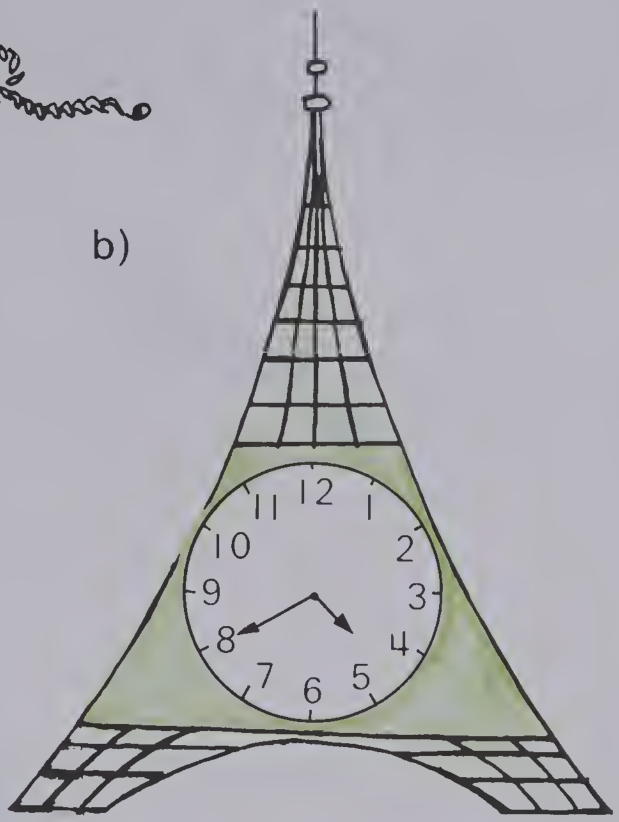
In Action

1. What time does each clock show?

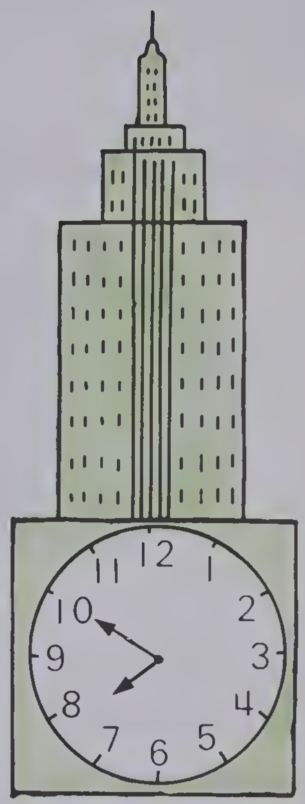
a)



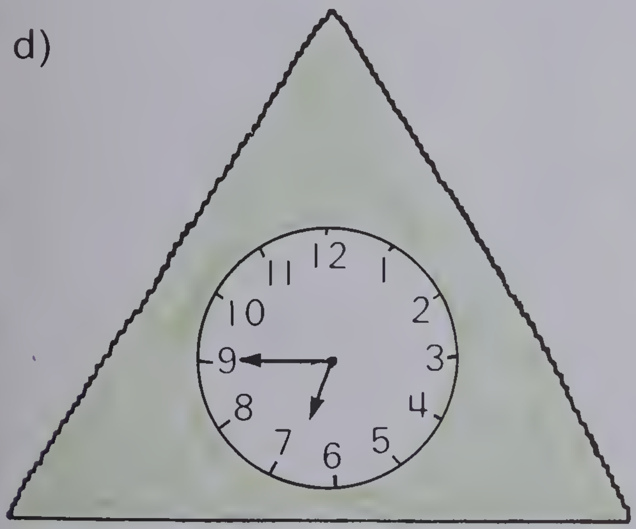
b)



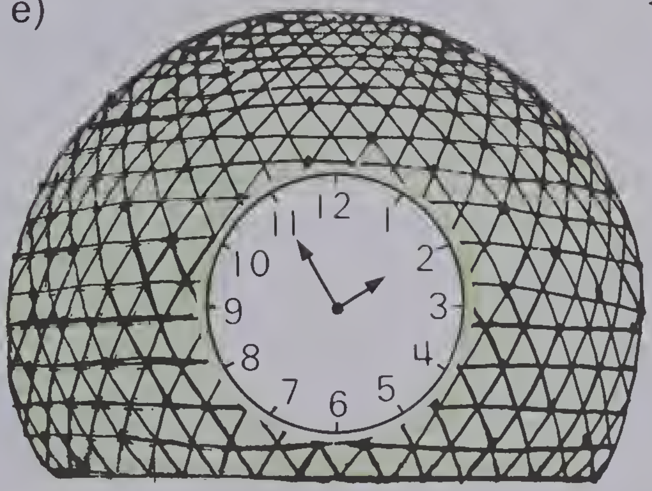
c)



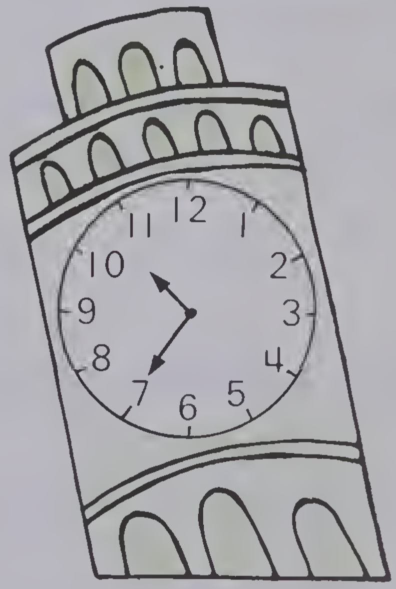
d)



e)



f)



2. Write the time.
Use a clock to help you.
   - a) 10 minutes later than 7:20
   - b) 15 minutes later than 3:30
   - c) 5 minutes earlier than 5:55
   - d) 25 minutes later than 2:25
   - e) 30 minutes earlier than 11:05
   - f) 20 minutes later than 9:10

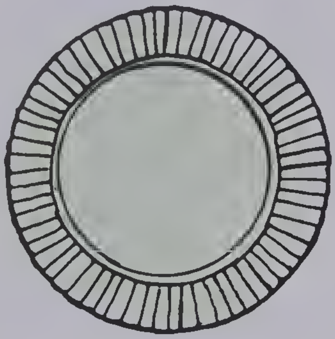
3. Make a timetable for a school day.
Set it up like this.

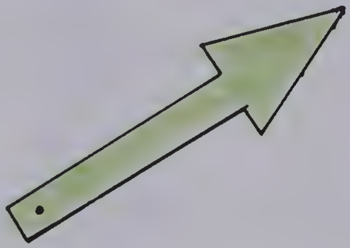
Time	Activity
7:30	I get up.
8:00	I eat breakfast.

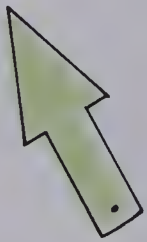
Draw pictures about your favourite times of the day.

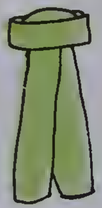
Byway

Clock Making



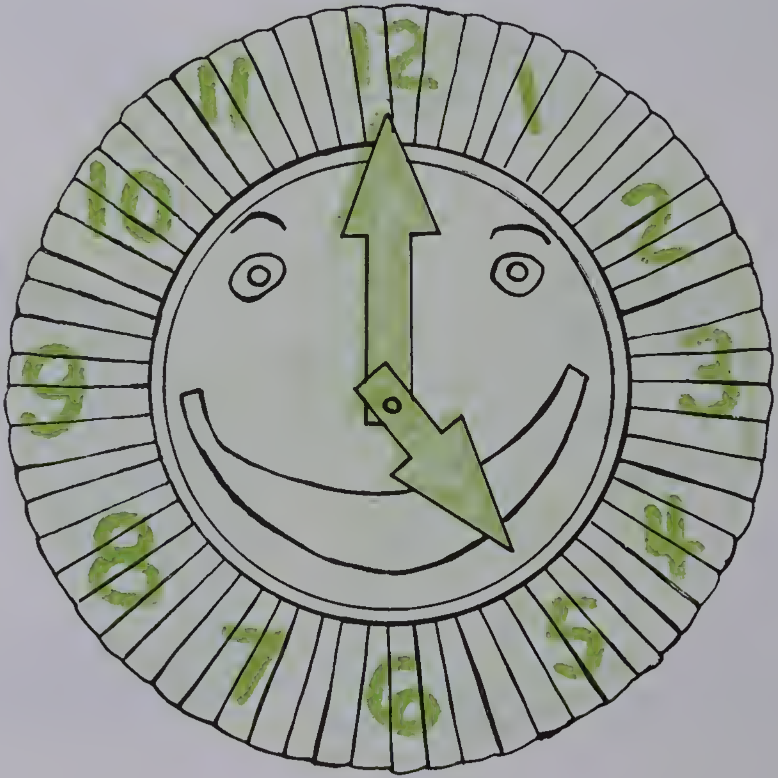






Use a paper plate,
black cardboard hands,
and a wing clip
to make your own clock face.
Decorate it if you wish.

Now work with a friend.
Use your own clock faces.



My Time is Your Time

Here is a game 2 people can play.

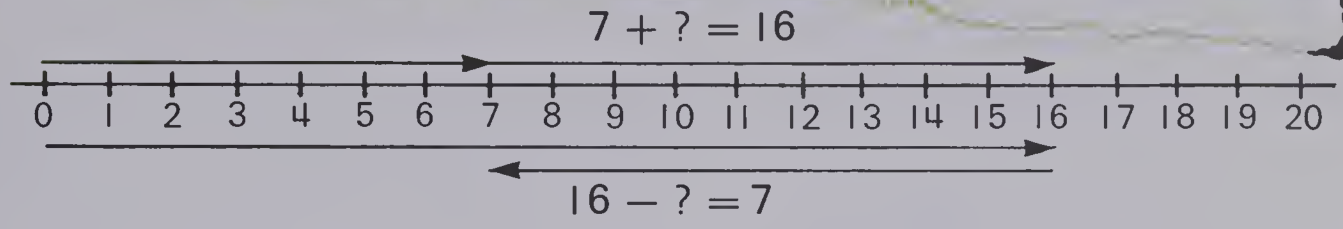
Say a time.
Your friend shows the time on the clock face.
If it is correct, your friend scores a point.
Your friend also tells something that happens at that time on a school day.

Now your friend says a time.
You must show the time on your clock face and tell something that happens at that time.

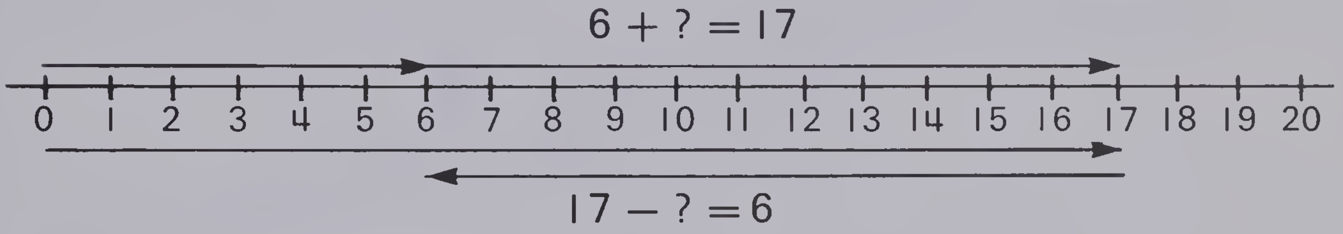
Continue playing the game.
The person who scores the most points wins.

Explore 16 and 17

16
1 ten and 6
16 = 10 + 6


7 + ? = 16
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
16 − ? = 7

17
1 ten and 7
17 = 10 + 7


6 + ? = 17
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
17 − ? = 6

Use a number line to explore the facts of 16 and 17.
Write the sentences.

In Action

1. Complete the number pair patterns.

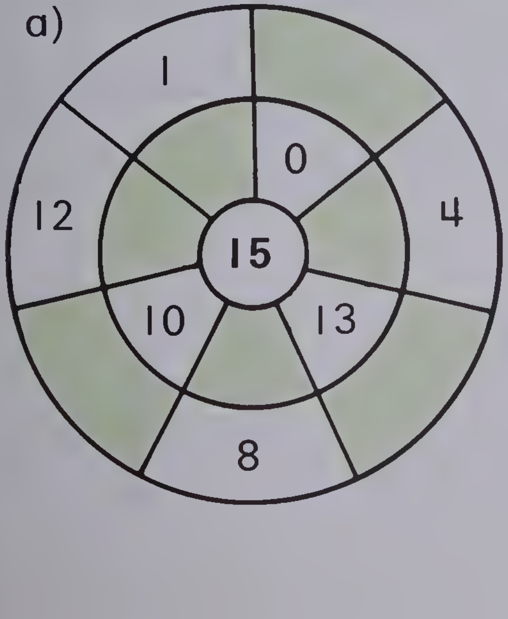
Add	Answer
(16,0)	16
(15,1)	16
(14,2)	16

Subtract	Answer
(16,0)	16
(16,1)	15
(16,2)	14

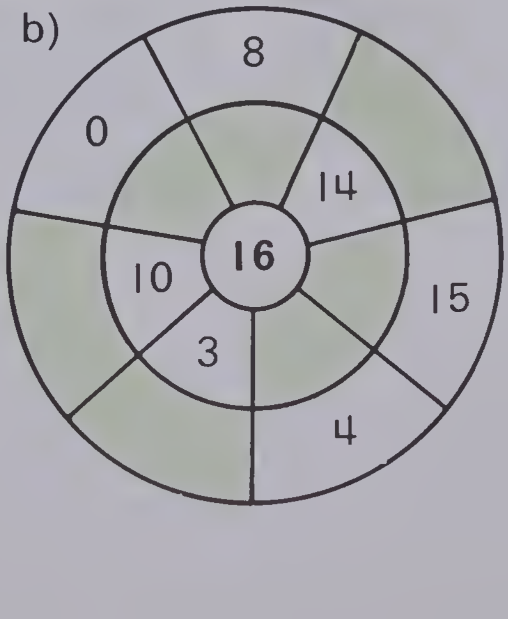
2. Write number pair patterns for 17.

3. Complete the number wheels in your notebook.
Add from the outside in, or subtract from the inside out.

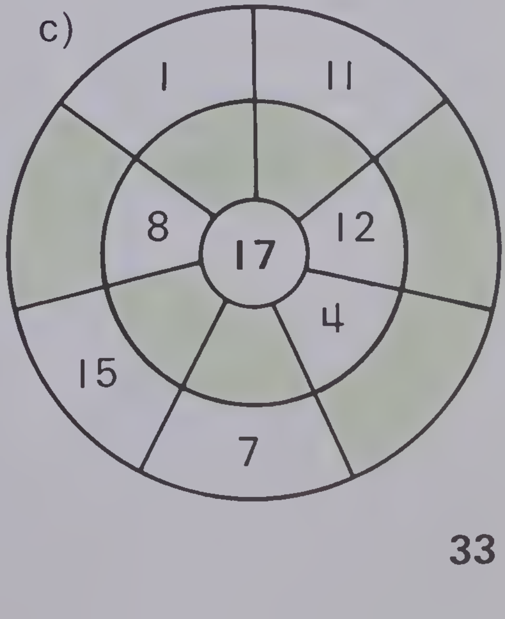
a)

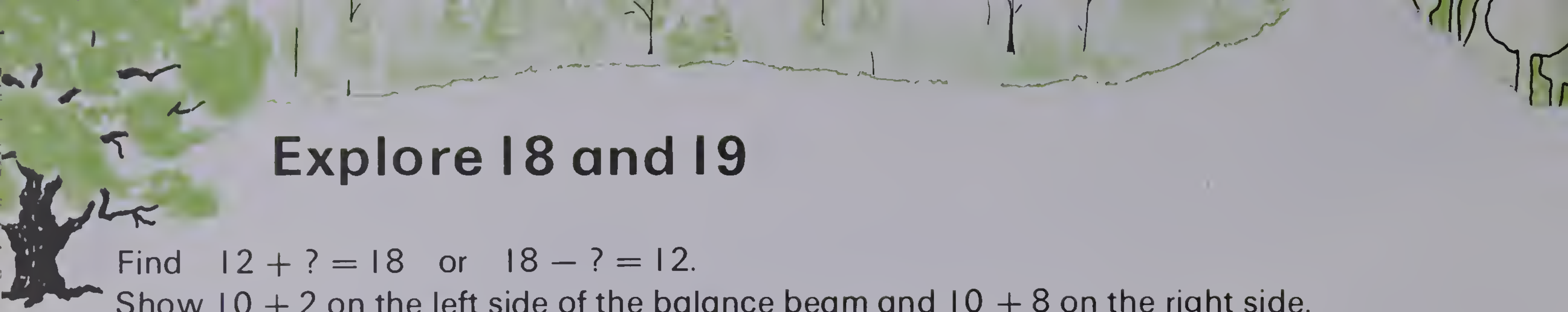

1
4
12
8
0
13
10
15

b)


8
0
15
4
14
10
3
16

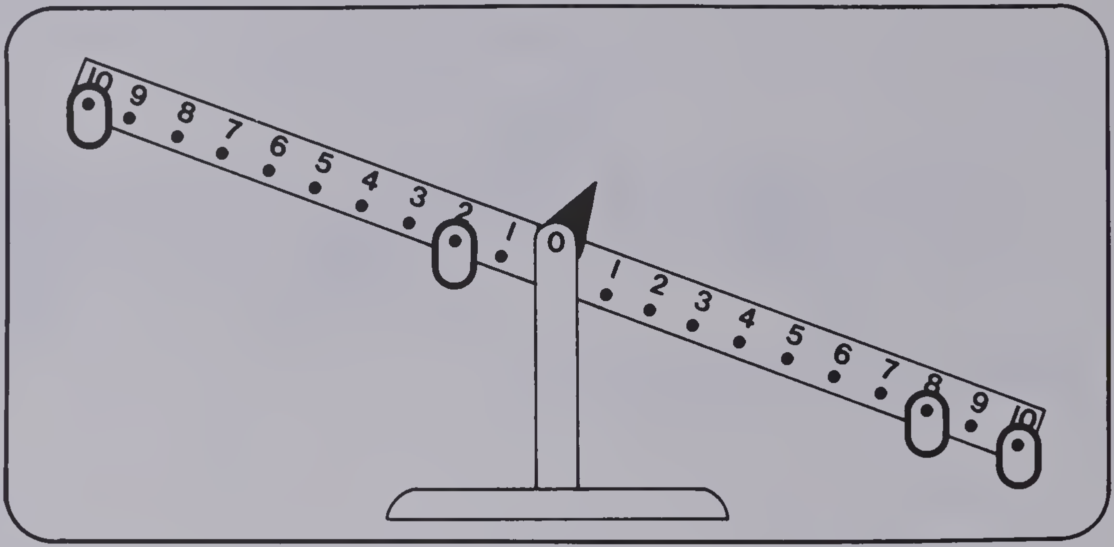
c)


1
11
15
7
8
12
4
17



Explore 18 and 19

Find 12 + ? = 18 or 18 − ? = 12.
Show 10 + 2 on the left side of the balance beam and 10 + 8 on the right side.



What number must we add to the left side to make the beam balance?

In Action

1. Use a balance beam or a number line to find facts of 18 and 19.

2. Complete the charts in your notebook.
Add the numbers in the inner square to find the numbers in the outer square.

a)

20			
	11	7	18
	8	9	
	19		

b)

	17		
		4	18
19	3		
		20	30

c)

	7		18
	3	14	
		19	

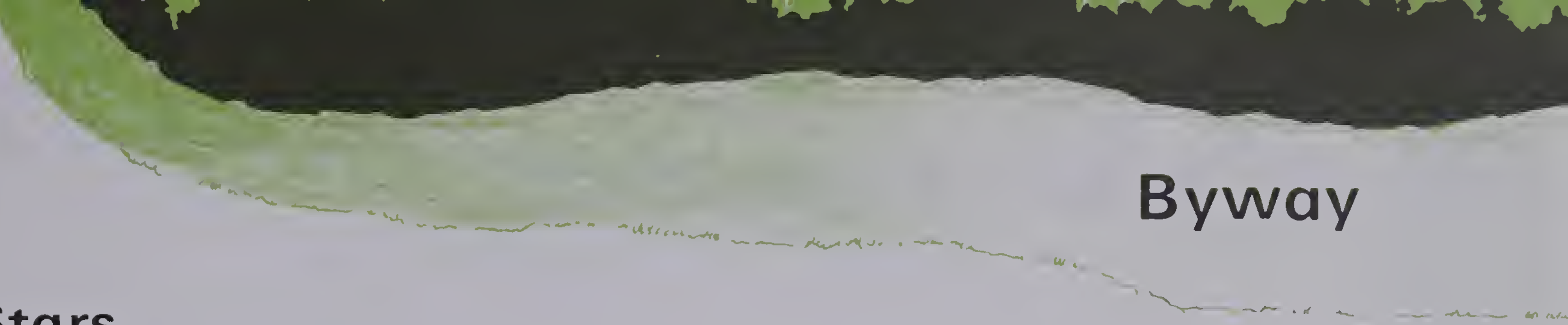
d)

			15
19		9	
	16	18	

3. Add.

Think 5, 15

10	8	9	7	6	11	5	2	2	15	10	6
4	2	1	4	6	3	12	13	2	1	3	11
1	5	6	5	5	3	1	4	14	3	5	2

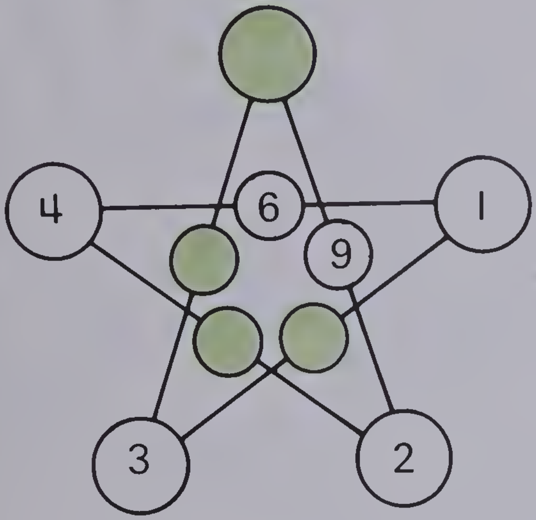


Byway

Magic Stars

The numbers in any straight line add up to the same number.

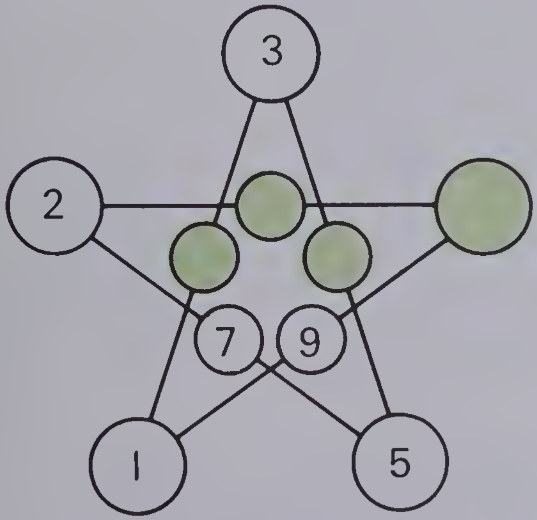
1. The sum is 11.



4 + 6 + 1 = 11

Find the missing numbers.
Use 0 to 9.
Use each number once only.

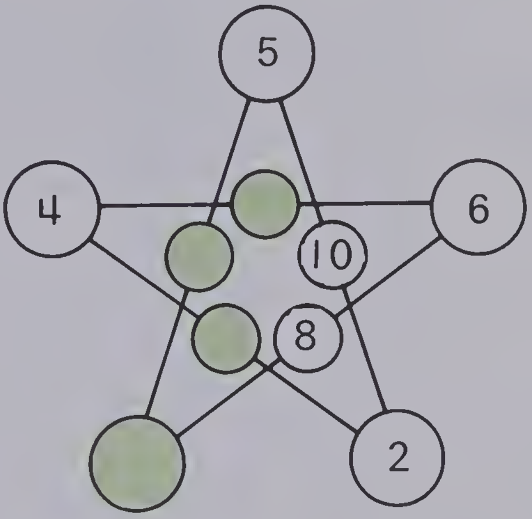
2. The sum is 14.



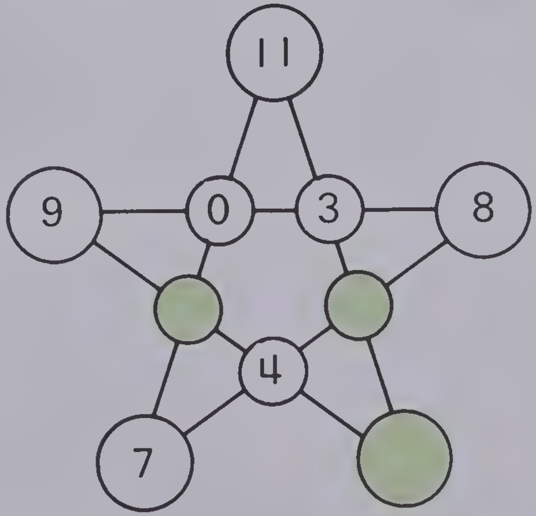
2 + 7 + 5 = ?

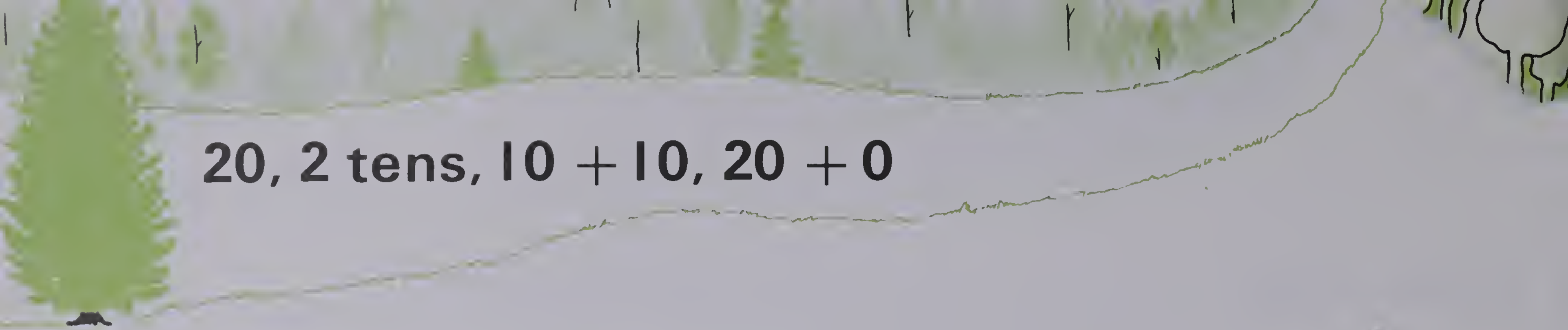
Find the missing numbers.
Use 1 to 10.
Use each number once only.

3. What is the sum of the numbers in any straight line?
Complete the star.
Use 2 to 11.
Use each number once only.



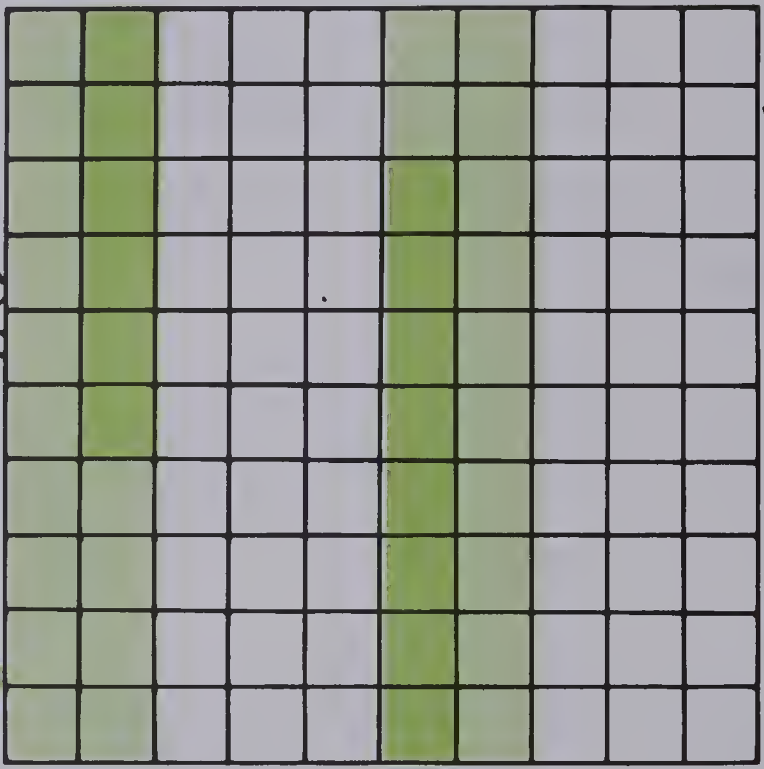
4. What is the sum of the numbers in any straight line?
Complete the star.
Use each number once only.





20, 2 tens, 10 + 10, 20 + 0

Use graph paper and strips to find facts of 20.
Write the sentences.



$14 + 6 = 20$
$20 - 6 = 14$

$8 + 12 = 20$
$20 - 12 = 8$

In Action

1. Use graph paper and strips to show facts of 18 and 19.

2. Solve.

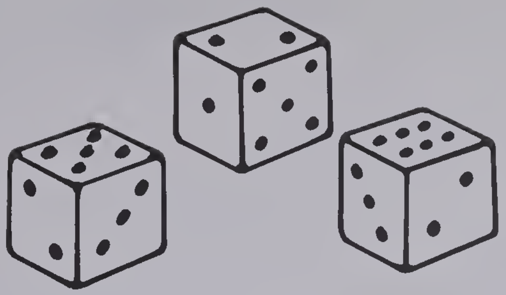
a) $13 + a = 20$
$a = ?$
b) $19 - y = 4$
$y = ?$
c) $c + 6 = 18$
$c = ?$

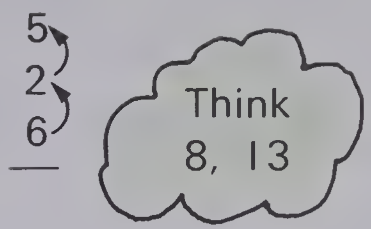
d) $17 - d = 10$
$d = ?$
e) $11 + e = 16$
$e = ?$
f) $20 - f = 7$
$f = ?$

g) $g + 19 = 19$
$g = ?$
h) $18 - h = 16$
$h = ?$
i) $w + 0 = 20$
$w = ?$

j) $20 - j = 15$
$j = ?$
k) $13 + k = 19$
$k = ?$
l) $20 - v = 6$
$v = ?$

3. Roll 3 ordinary dice.
Write the numerals in a column.
Add.



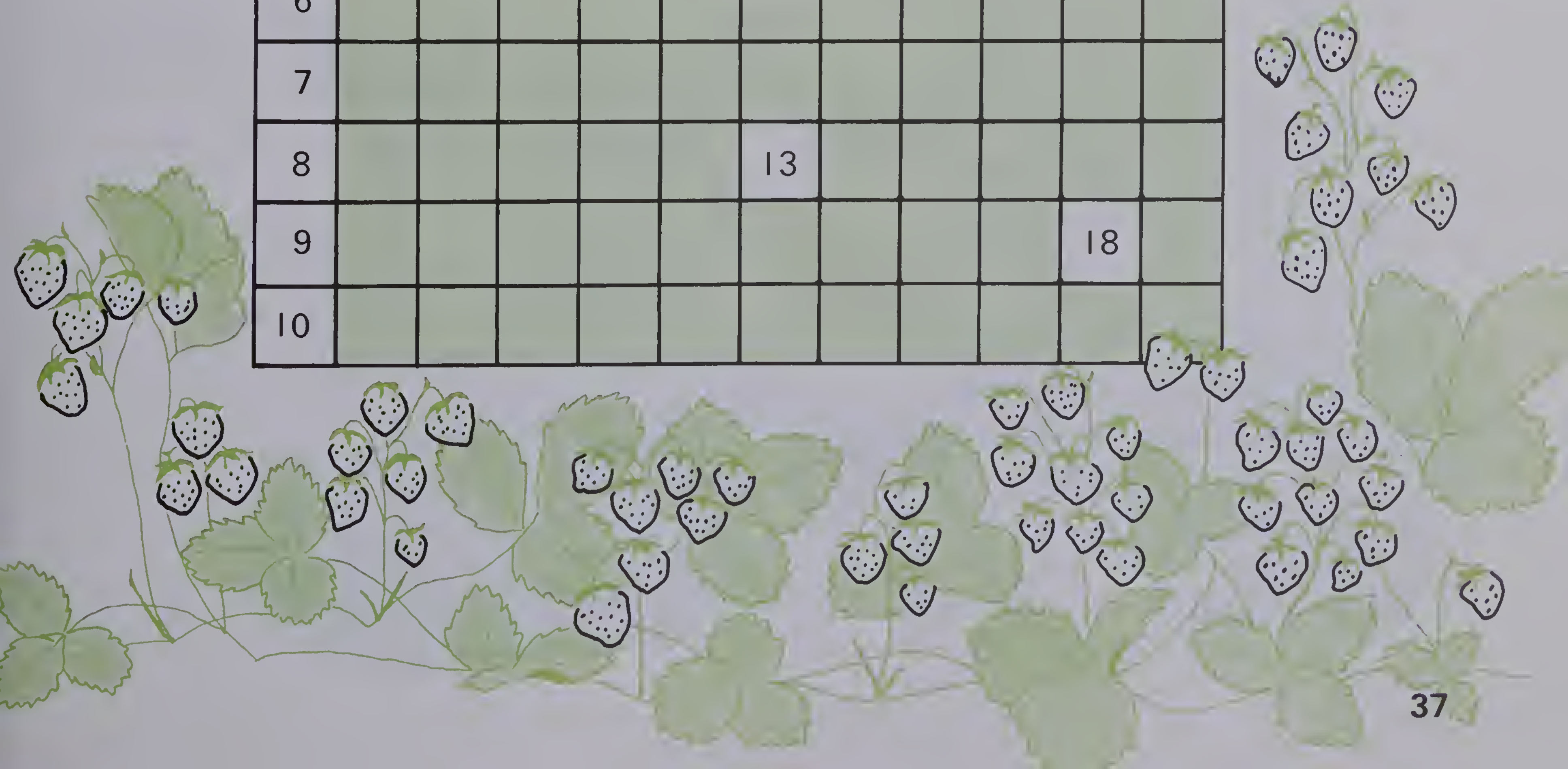


4. Subtract.

a) 17 − 0 = ?
b) 20 − 7 = ?
c) 19 − 5 = ?
d) 18 − 4 = ?
e) 17 − 9 = ?
f) 16 − 9 = ?
g) 20 − 9 = ?
h) 15 − 0 = ?
i) 19 − 6 = ?
j) 18 − 7 = ?

5. Complete the addition chart in your notebook.

+	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3								10			
4				7							
5											
6											
7											
8						13					
9										18	
10											



Retrace Your Steps

1. Add.

You don't need to say addition sentences.

10	5	11	5	4	2	1	4
1	11	2	14	9	6	0	1
6	4	3	0	2	12	14	13

2. Subtract.

a) (16,15)
b) (19,2)
c) (18,12)
d) (20,18)
e) (17,3)

f) (17,13)
g) (18,3)
h) (16,2)
i) (20,7)
j) (19,5)

3. Add.

a) (0,20)
b) (12,5)
c) (2,17)
d) (14,2)
e) (0,17)

f) (18,0)
g) (4,11)
h) (17,3)
i) (11,7)
j) (15,4)

4. Solve.

a) $17 + y = 19$
$y = ?$

b) $18 - w = 3$
$w = ?$

c) $v + 13 = 20$
$v = ?$

d) $u - 17 = 3$
$u = ?$

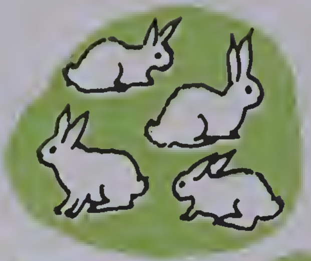
e) $20 - r = 10$
$r = ?$

f) $6 + q = 18$
$q = ?$

g) $p + 5 = 20$
$p = ?$

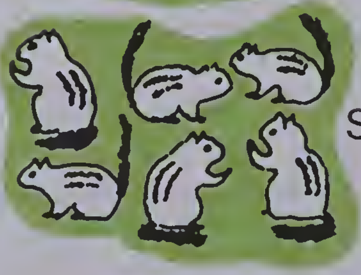
h) $n - 5 = 13$
$n = ?$

5. a)



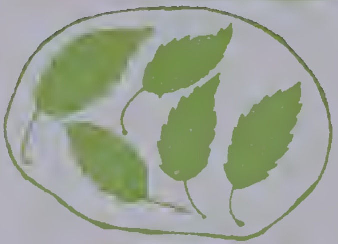
Add 15. Subtract 12.

b)



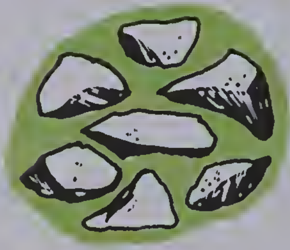
Subtract 3. Add 15.

c)



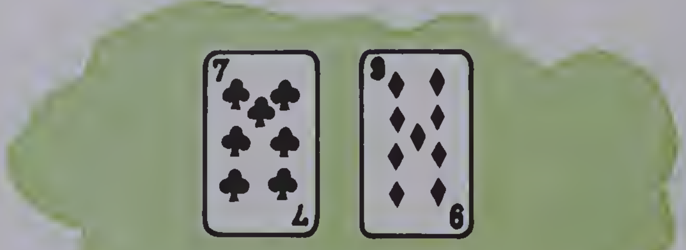
Add 15. Subtract 8.

d)



Subtract 6. Add 18.

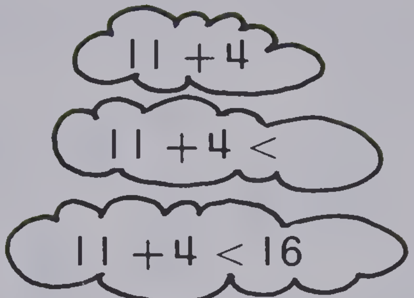
6. Remove the Jacks, Queens, and Kings
from a deck of playing cards.
Shuffle the cards that are left.
Play with a partner.
Your partner turns up 2 cards.
You write a sentence
using the numbers on the cards.
Take turns turning up cards.



$7 + 9 = 16$

In Action

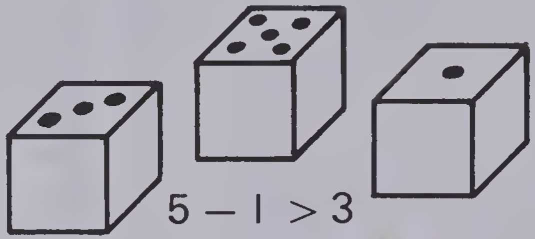
1. Work with a friend.
   Write an addition or subtraction expression.
   Then write $>$ or $<$.
   Your friend completes the sentence.
   Take turns writing the expression.



2. Use $>$ or $<$ to complete the sentences.

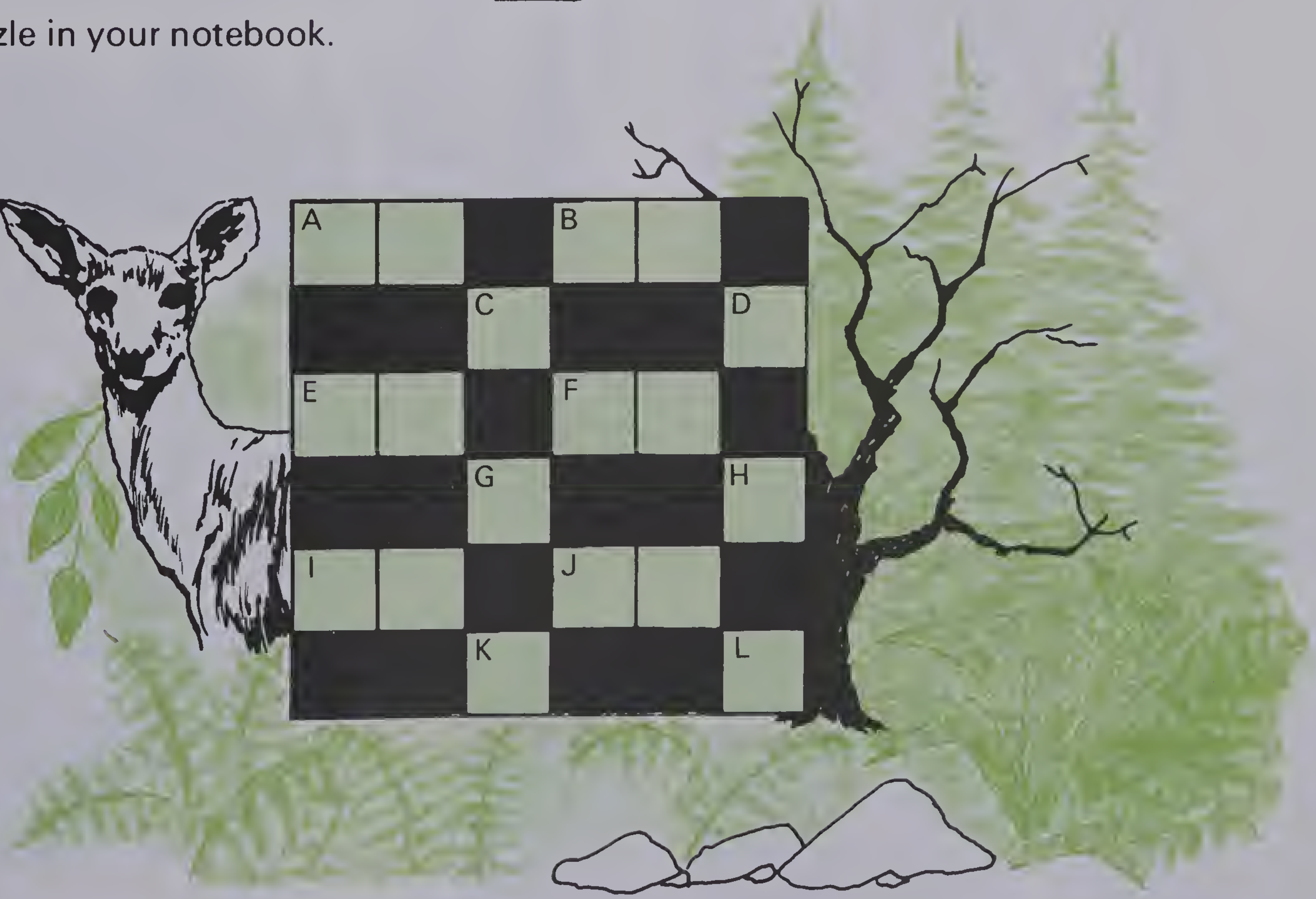
a) $20 ? 7 + 12$
b) $13 + 5 ? 19$
c) $8 ? 19 - 6$
d) $18 - 10 ? 10$
e) $20 - 15 ? 6$
f) $20 ? 15 + 4$
g) $18 - 16 ? 4$
h) $19 ? 6 + 14$
i) $17 + 1 ? 16$
j) $18 ? 20 - 3$
k) $19 - 1 ? 16$
l) $15 + 3 ? 20$

3. Roll 3 ordinary dice.
   Make up a sentence using $>$ or $<$
   and the numerals on the dice.



4. Copy the puzzle in your notebook.
   Complete.

A $3 + 17$
B $19 - 4 > ?$
C $20 - 19$
D $? < 18 - 13$
E $19 - 7$
F $? > 6 + 13$
G $20 - 20 < ?$
H $13 - 7$
I $12 + 2 > ?$
J $? < 5 + 11$
K $13 - 12$
L $14 - 5$



A Walk in the Forest

Karl saw 12 toadstools.
Then he found 7 more.
How many toadstools did he see altogether?

$12 + 7 = 19$
Karl saw 19 toadstools.

1. 20 rabbits were playing in a thicket.
   7 hopped away.
   How many rabbits were left in the thicket?

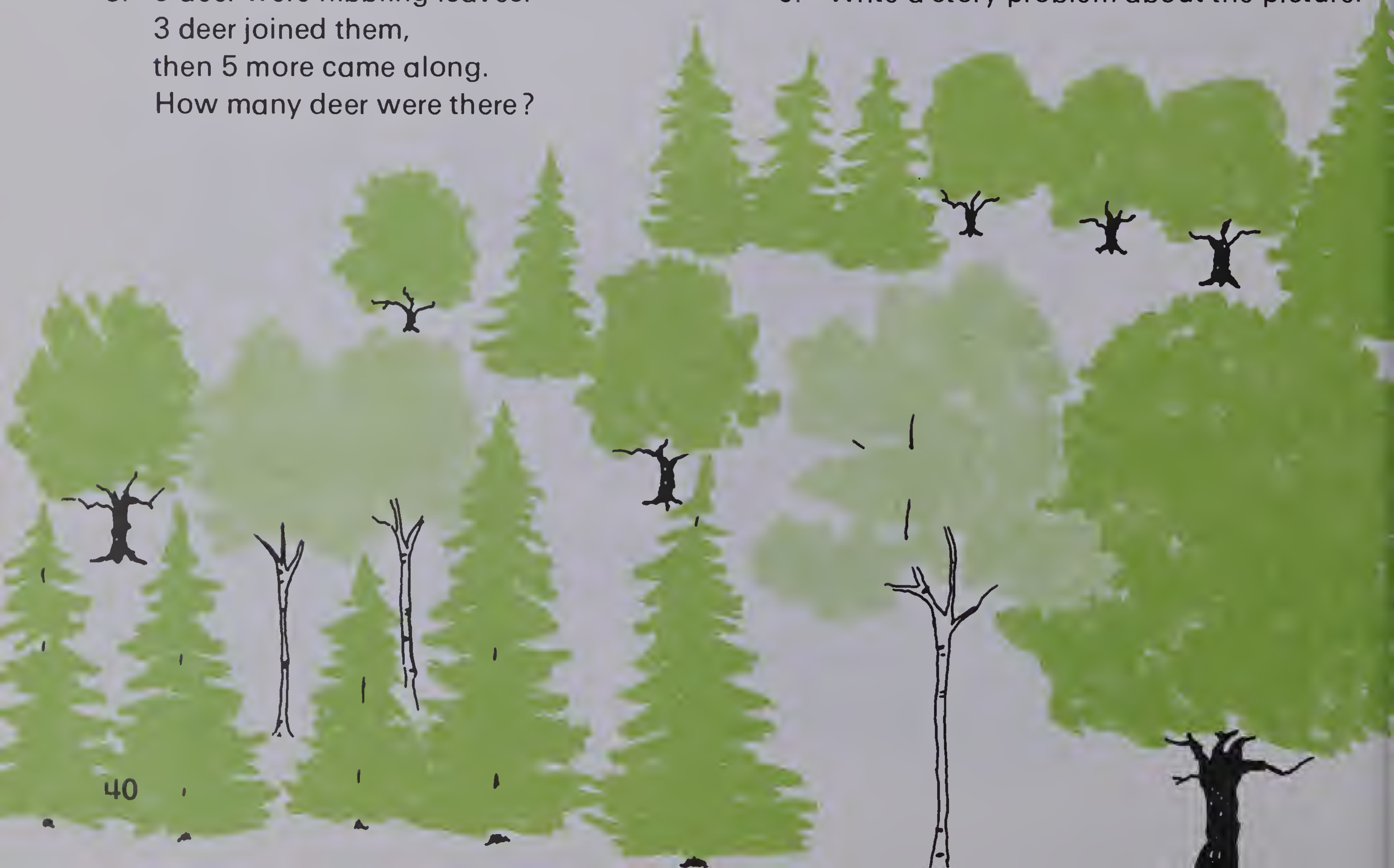
2. Maria saw 5 large trout.
   Then 13 small trout swam by.
   How many trout did Maria see?

3. 9 deer were nibbling leaves.
   3 deer joined them,
   then 5 more came along.
   How many deer were there?

4. I found 19 wild berries on a bush.
   I picked 13 of them.
   How many did I leave on the bush?

5. Coloured leaves were falling.
   Jeanette saw 13 red leaves,
   3 brown leaves, and 4 yellow leaves.
   How many leaves did she see?

6. Write a story problem about the picture.

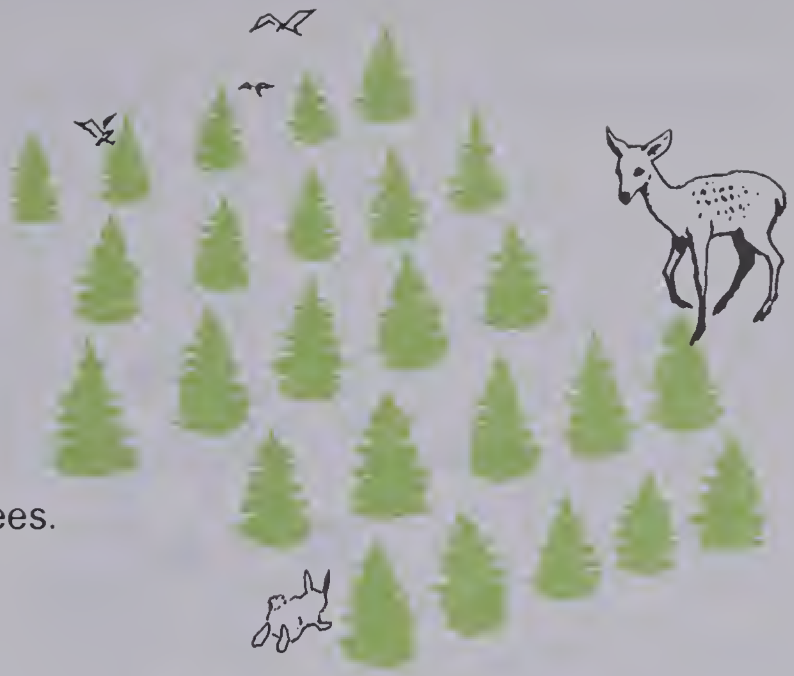


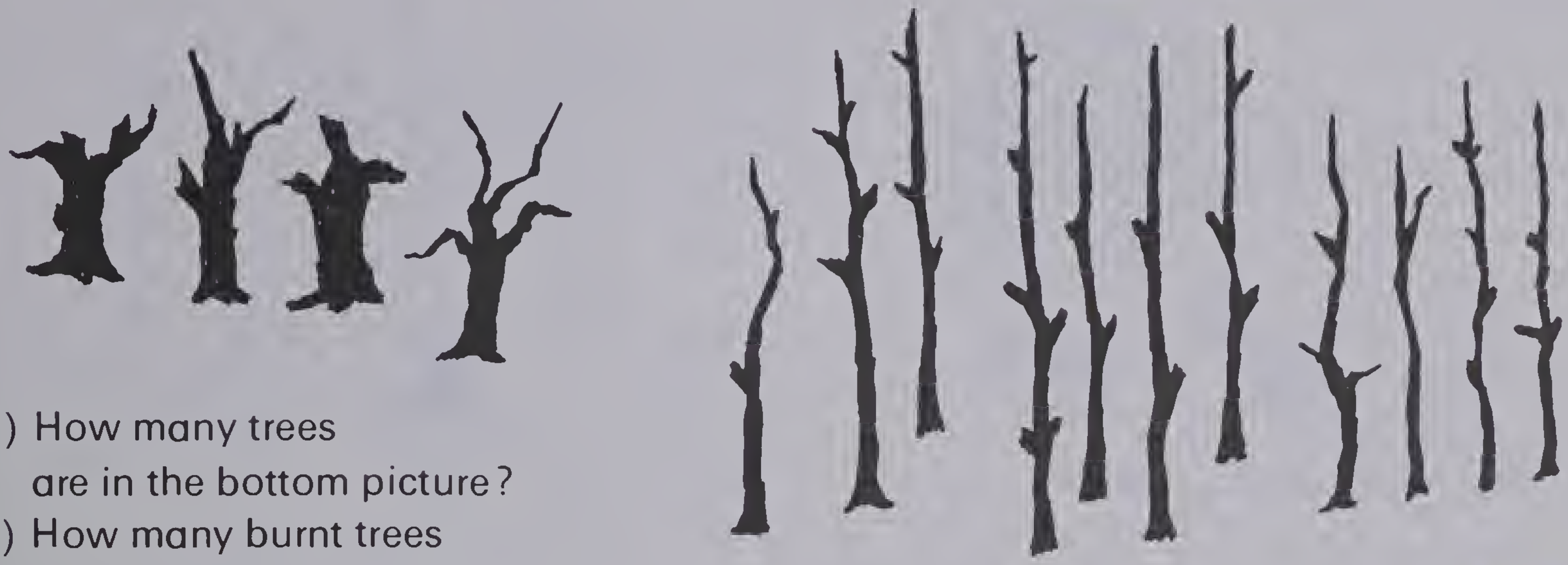
Tree Conservation

This forest was once thick and green.
Many birds and animals lived there.

Then someone caused a fire.
The forest burned.
The birds and animals lost their homes.

Some school children have planted new trees.
Now the birds and animals can return
and be happy there again.





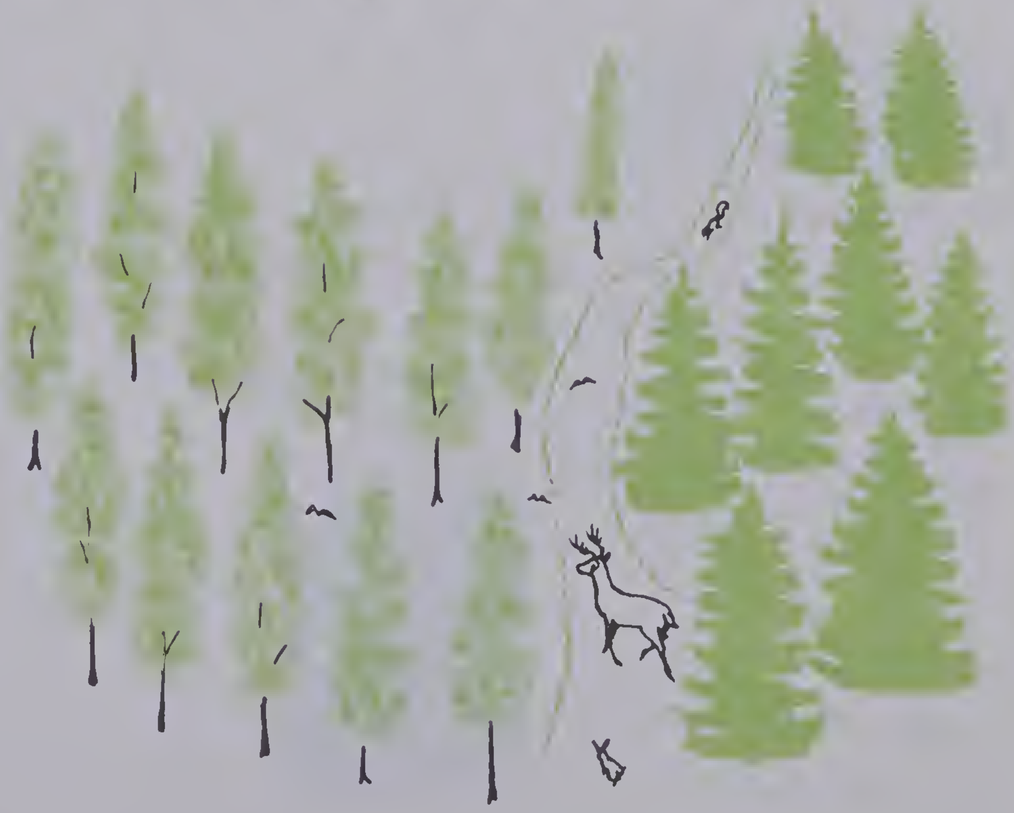
1. a) How many trees
   are in the bottom picture?
   b) How many burnt trees
   are in the middle picture?

2. How many more trees
   are in the bottom picture
   than are in the middle picture?

3. How many trees
   did the children plant?
   Can you think of a fast way
   to count them?

4. Make a list of all the things you know
   that are made from wood or paper.

5. Write a story about a forest, woods,
   or park you know.



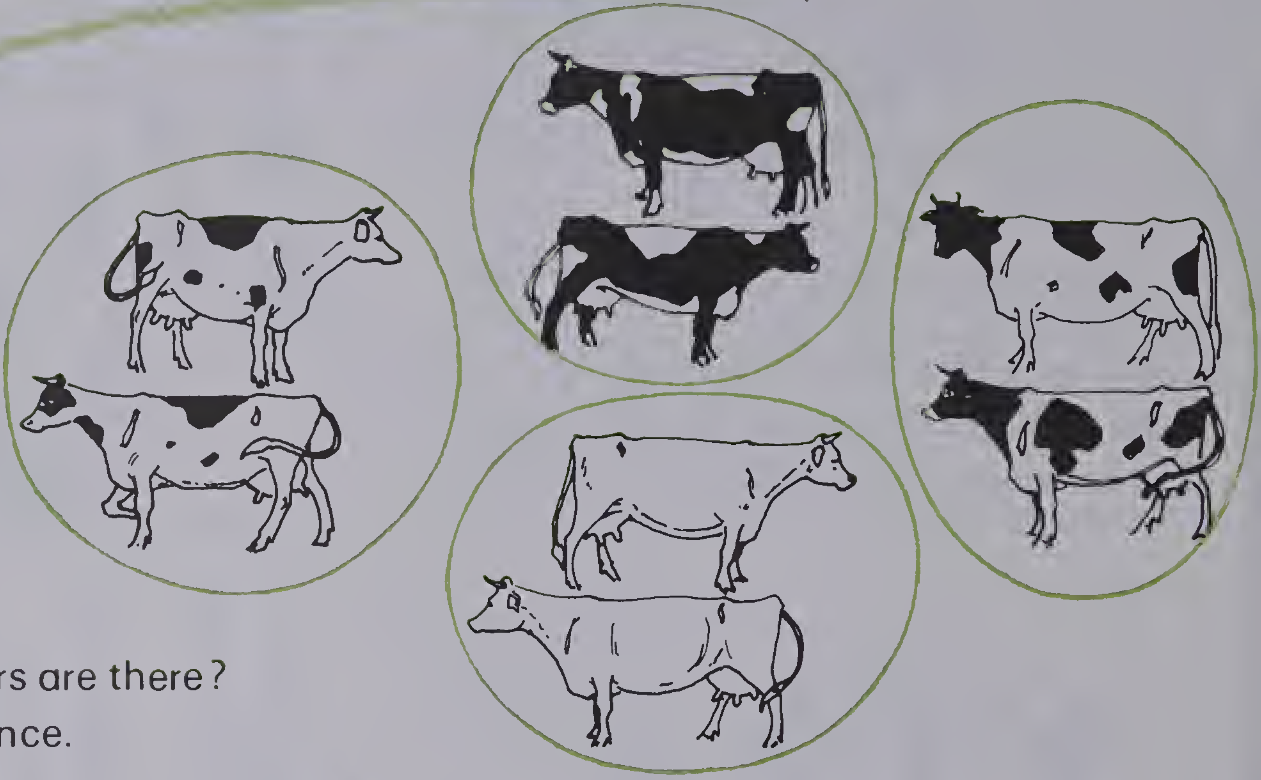
Explore Sets of 2, Sets of 1

How many cows are there?
Count by twos.

There are 4 sets of 2 cows.

$2 + 2 + 2 + 2 = 8$

$4 \times 2 = 8$



Use paper plates and toy animals or counters.
Show 1 set of 2.
How many animals or counters are there?
Write the multiplication sentence.

Show 2 sets of 2,
3 sets of 2,
4 sets of 2,
5 sets of 2.
Write the multiplication sentences.

In Action

1. Complete the chart in your notebook.
Use paper plates and counters to help you.
Look for number patterns.

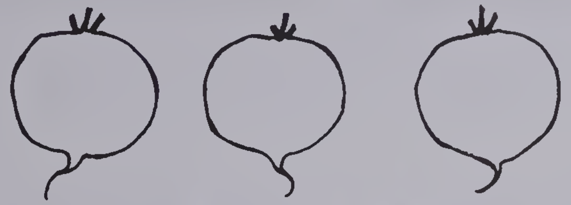
Number of Sets	Number in Each Set	Number Altogether
1	1	🟩
2	1	🟩
3	1	🟩
4	1	🟩
5	1	🟩

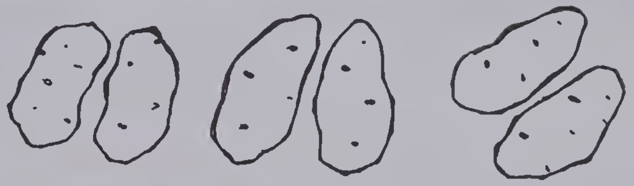
2. Complete.
Write the multiplication sentences.
a) $1 + 1 + 1 = ?$
b) $2 + 2 = ?$
c) $1 + 1 + 1 + 1 = ?$
d) $2 + 2 + 2 = ?$
e) $1 + 1 = ?$
f) $2 + 2 + 2 + 2 = ?$
g) $1 + 1 + 1 + 1 + 1 = ?$
h) $1 = ?$
i) $2 + 2 + 2 + 2 + 2 = ?$
j) $2 = ?$

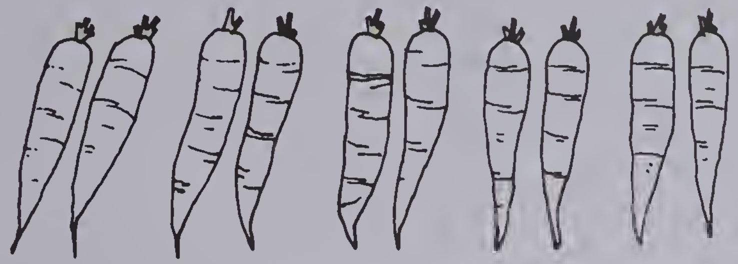
In Action

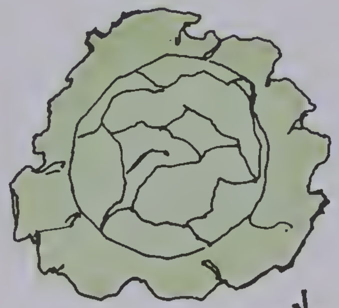
1. a) Start at 2.
   Count to 10 by twos.
   b) Start at 10.
   Count back to 0 by twos.

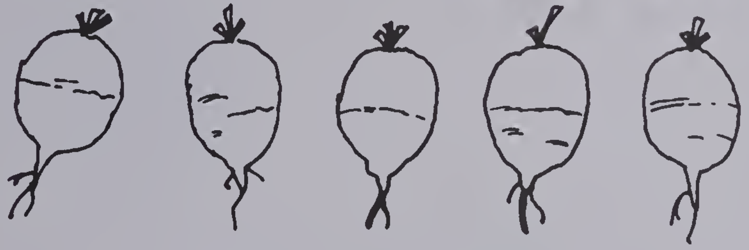
2. Write an addition sentence and a multiplication sentence for each picture.

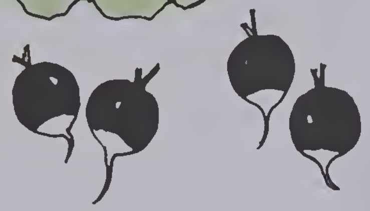
a)


b)


c)


d)


e)


f)


3. Use 10 counters.
   Make sets to find the answers.

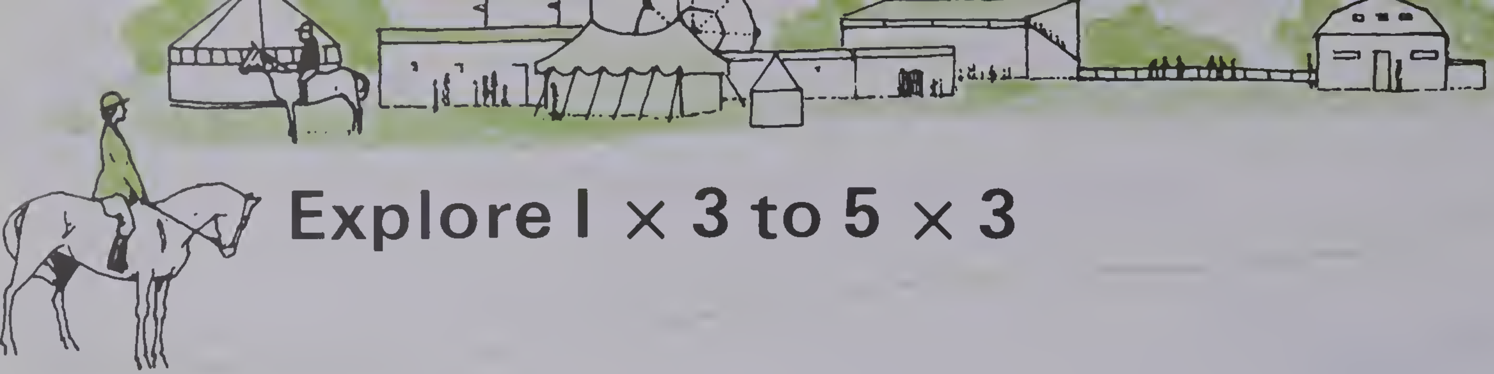
a) ? × 1 = 4
b) 2 × ? = 2
c) ? × 2 = 4
d) 1 × ? = 2
e) ? × 1 = 5
f) 4 × ? = 8
g) 3 × ? = 6
h) ? × 1 = 3
i) 4 × ? = 4
j) ? × 4 = 8

4. Complete.

a) 1 + 1 = ?
   2 × 1 = ?
b) 2 + 2 + 2 + 2 = ?
   4 × 2 = ?
c) 2 + 2 + 2 + 2 + 2 = ?
   5 × 2 = ?
d) 2 + 2 = ?
   2 × 2 = ?
e) 2 + 2 + 2 = ?
   3 × 2 = ?
f) 1 + 1 + 1 + 1 + 1 = ?
   5 × 1 = ?

5. Multiply.

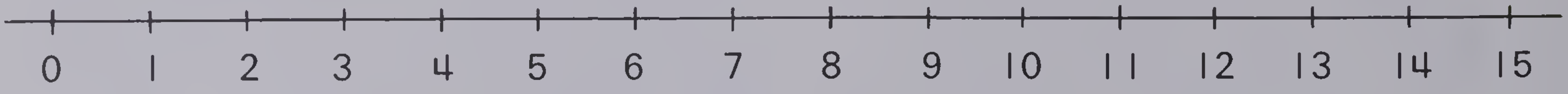
$\begin{array}{r} 1 \\ 1 \\ \hline \end{array}$ $\begin{array}{r} 1 \\ 4 \\ \hline \end{array}$ $\begin{array}{r} 2 \\ 1 \\ \hline \end{array}$ $\begin{array}{r} 2 \\ 3 \\ \hline \end{array}$ $\begin{array}{r} 1 \\ 5 \\ \hline \end{array}$ $\begin{array}{r} 1 \\ 3 \\ \hline \end{array}$ $\begin{array}{r} 2 \\ 5 \\ \hline \end{array}$ $\begin{array}{r} 2 \\ 4 \\ \hline \end{array}$ $\begin{array}{r} 1 \\ 2 \\ \hline \end{array}$ $\begin{array}{r} 2 \\ 2 \\ \hline \end{array}$ $\begin{array}{r} 3 \\ 1 \\ \hline \end{array}$ $\begin{array}{r} 4 \\ 2 \\ \hline \end{array}$



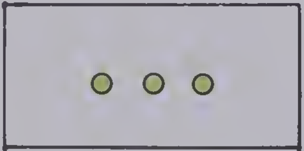
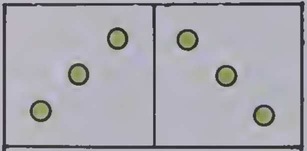
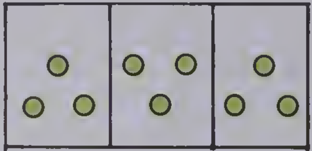
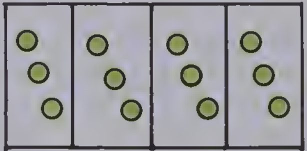
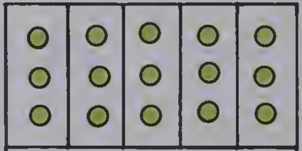
Explore 1 × 3 to 5 × 3

Start at 3.
Count to 15 by threes.

Start at 15.
Count back to 0 by threes.



Complete the pattern.

				
1 set of 3	? sets of 3	3 sets of ?	? sets of 3	5 sets of ?
1 × 3 = ?	2 × 3 = ?	3 × 3 = ?	4 × 3 = ?	5 × 3 = ?

In Action

1. Complete.

a) 3 + 3 + 3 = ?
3 × 3 = ?

b) 3 + 3 = ?
2 × 3 = ?

c) 3 + 3 + 3 + 3 + 3 = ?
5 × 3 = ?

d) 3 + 3 + 3 + 3 = ?
4 × 3 = ?

2. Complete.

a) 2 × 3 = ?
3 × 2 = ?

b) 1 × 3 = ?
3 × 1 = ?

c) 1 × 2 = ?
2 × 1 = ?

d) 3 × 3 = ?
e) 1 × 1 = ?
f) 4 × 3 = ?
g) 4 × 1 = ?
h) 5 × 3 = ?
i) 1 × 5 = ?

j) 3 × 4 = ?
k) 1 × 4 = ?
l) 3 × 5 = ?
m) 5 × 1 = ?
n) 4 × 2 = ?
o) 1 × 3 = ?

3. Complete.
Look for number patterns.

1 × 3 = ?
2 × ? = 6
? × 3 = 9
4 × 3 = ?
5 × ? = 15

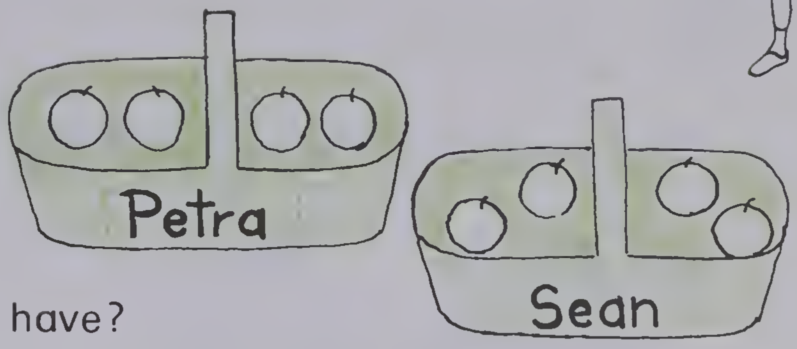
4. How many ponies are in

a) 2 sets of 3 ?
b) 3 sets of 5 ?
c) 3 sets of 1 ?
d) 0 sets of 2 ?
e) 1 set of 4 ?

1 × 4 to 5 × 4

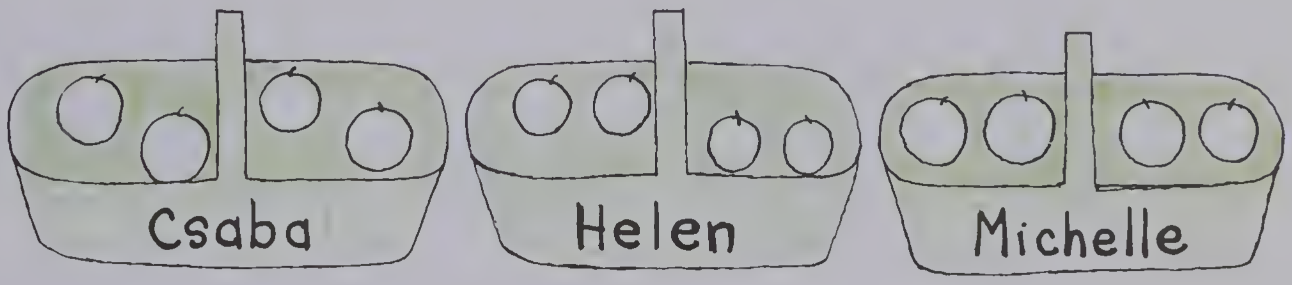
Write multiplication sentences.

How many apples does Petra have?
How many apples do Petra and Sean have?
How many apples do Petra, Sean, and Csaba have?
How many apples do Petra, Sean, Csaba, and Helen have?
How many apples do Petra, Sean, Csaba, Helen, and Michelle have?



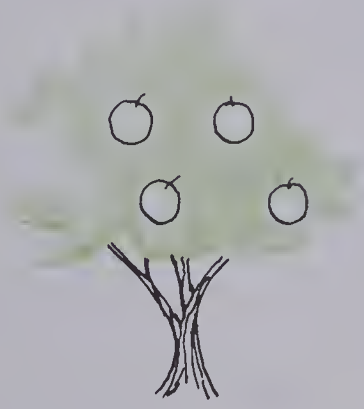
Start at 4.
Count to 20 by fours.

Start at 20.
Count back to 0 by fours.



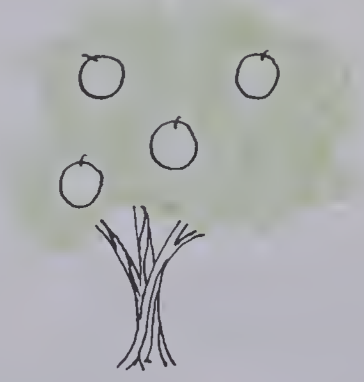
In Action

1. Complete.
   a) 2 × 4 = ?
   4 × 2 = ?
   b) 1 × 4 = ?
   4 × 1 = ?
   c) 3 × 4 = ?
   4 × 3 = ?

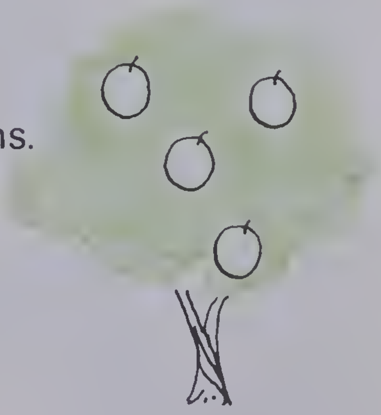


2. Complete.
   a) 4 + 4 + 4 + 4 + 4 = ?
   5 × 4 = ?
   b) 4 + 4 + 4 = ?
   3 × 4 = ?
   c) 4 + 4 + 4 + 4 = ?
   4 × 4 = ?

3. Complete.
   a) 1 × ? = 4
   b) ? × 3 = 3
   c) 3 × ? = 9
   d) ? × 4 = 8
   e) 4 × 4 = ?
   f) 5 × ? = 20

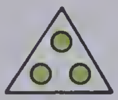


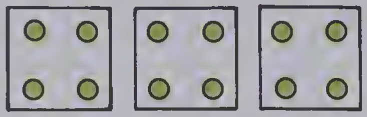
4. Complete.
   Look for number patterns.
   1 × 4 = ?
   2 × 4 = ?
   ? × 4 = 12
   4 × ? = 16
   5 × 4 = ?

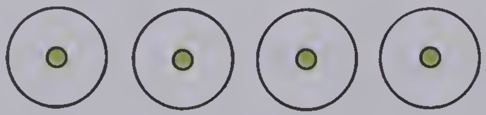


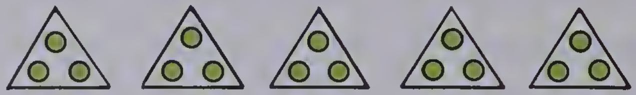
Retrace Your Steps

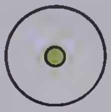
1. Write multiplication sentences for the pictures.

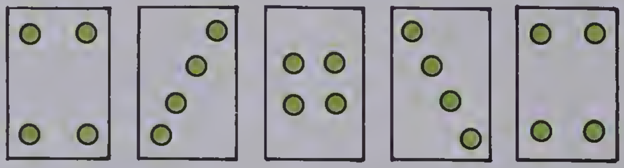
a) 

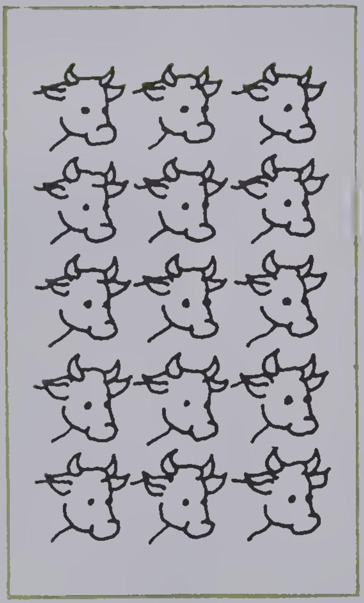
b) 

c) 

d) 

e) 

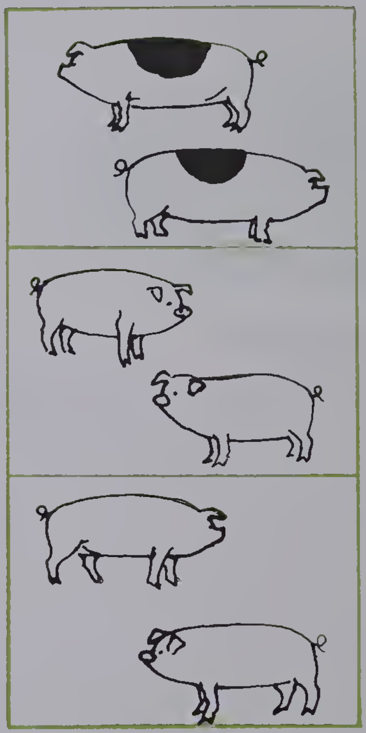
f) 



2. a) There are 3 cows in each row.
There are 5 rows.
How many cows?

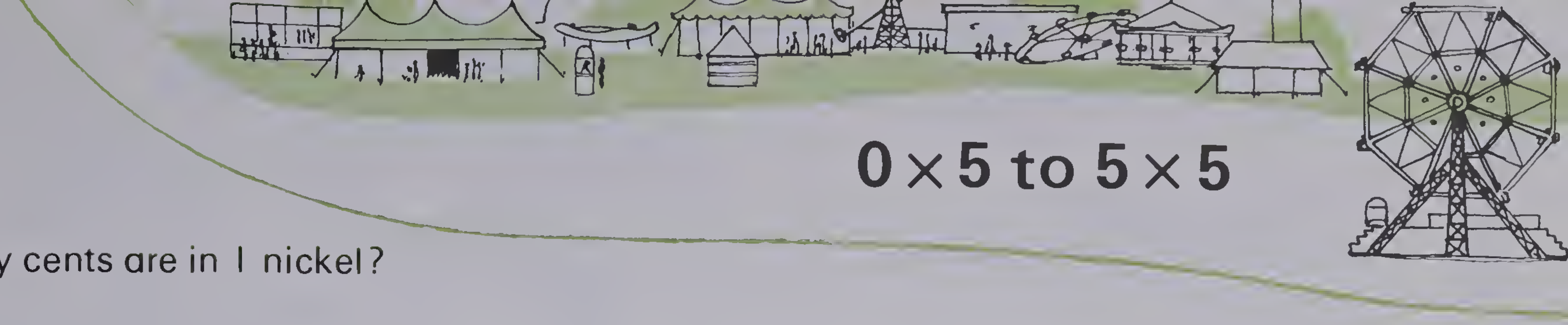
b) There are 2 pigs in each pen.
There are 3 pens.
How many pigs?

c) Make a question about
pigs in a pen or cows
in a row.



3. a) $1 \times 4 = ?$
b) $4 \times 2 = ?$
c) $2 \times 1 = ?$
d) $3 \times 3 = ?$
e) $2 \times 2 = ?$
f) $3 \times 5 = ?$
g) $4 \times 1 = ?$
h) $1 \times 2 = ?$
i) $4 \times 5 = ?$

4. Complete.
a) $0 \times 4 = ?$
b) $1 \times 3 = ?$
c) $5 \times 2 = ?$
d) $1 \times 4 = ?$
e) $5 \times 3 = ?$
f) $4 \times 4 = ?$
g) $2 \times 2 = ?$
h) $3 \times 2 = ?$
i) $2 \times 4 = ?$
j) $1 \times 2 = ?$
k) $2 \times ? = 6$
l) $? \times 2 = 4$
m) $3 \times 1 = ?$
n) $3 \times 4 = ?$
o) $5 \times ? = 20$
p) $? \times 1 = 5$
q) $? \times 4 = 8$
r) $4 \times ? = 12$
s) $0 \times 2 = ?$
t) $? \times 4 = 16$

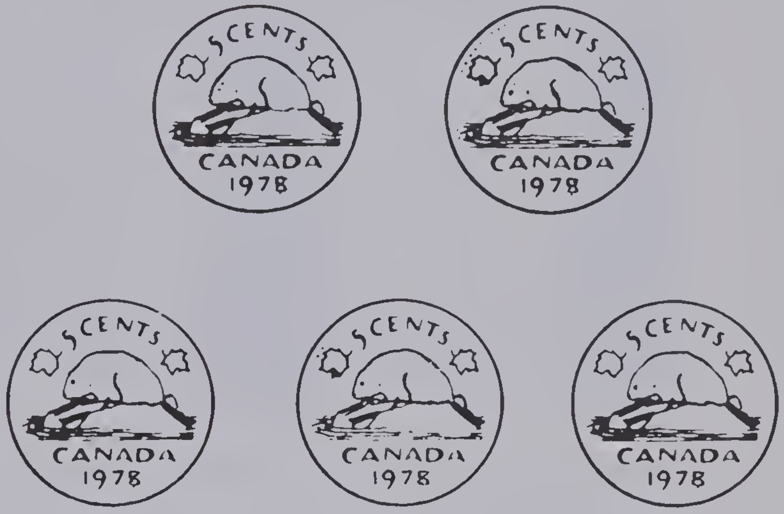


0 × 5 to 5 × 5

How many cents are in 1 nickel?

Write a multiplication sentence that tells how many cents each child has.

Larry has 5 nickels. $5 \times 5 = ?$
Kim has 4 nickels.
Nina has 3 nickels.
Mauro has 2 nickels.
Denise has 1 nickel.
Julian has 0 nickels. $0 \times 5 = ?$



Start at 5.
Count to 25 by fives.

Start at 25.
Count back to 0 by fives.

In Action

1. Complete.

a) $2 \times 5 = ?$
$? \times 2 = 10$

c) $1 \times 5 = ?$
$? \times 1 = 5$

e) $0 \times 5 = ?$
$? \times 5 = 0$

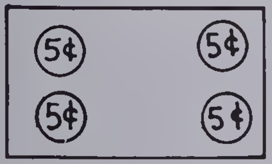
b) $3 \times 5 = ?$
$5 \times ? = 15$

d) $4 \times 5 = ?$
$5 \times ? = 20$

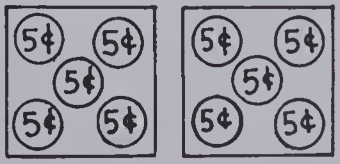
f) $5 \times 5 = ?$
$? \times 5 = 25$

2. Write multiplication sentences.

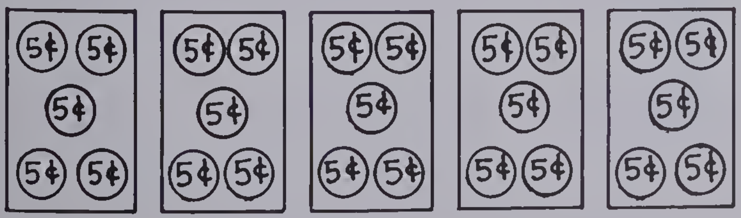
a)



b)



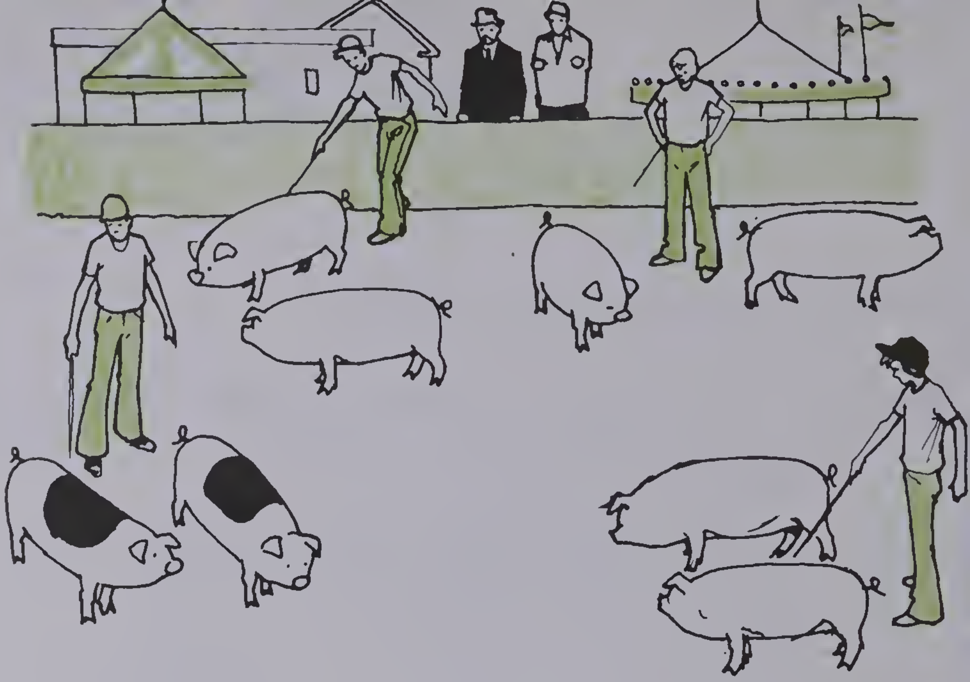
c)



3. Complete the chart in your notebook.

×	0	1	2	3	4	5
0		0				
1				3		
2						10
3			6			
4	0					
5			10			

Come to the Fair



4 boys each showed 2 pigs at the fair.
How many pigs did they show?

4 × 2 = 8
They showed 8 pigs.

1. 4 girls each brought 3 sheep to the fair.
   How many sheep did they bring?

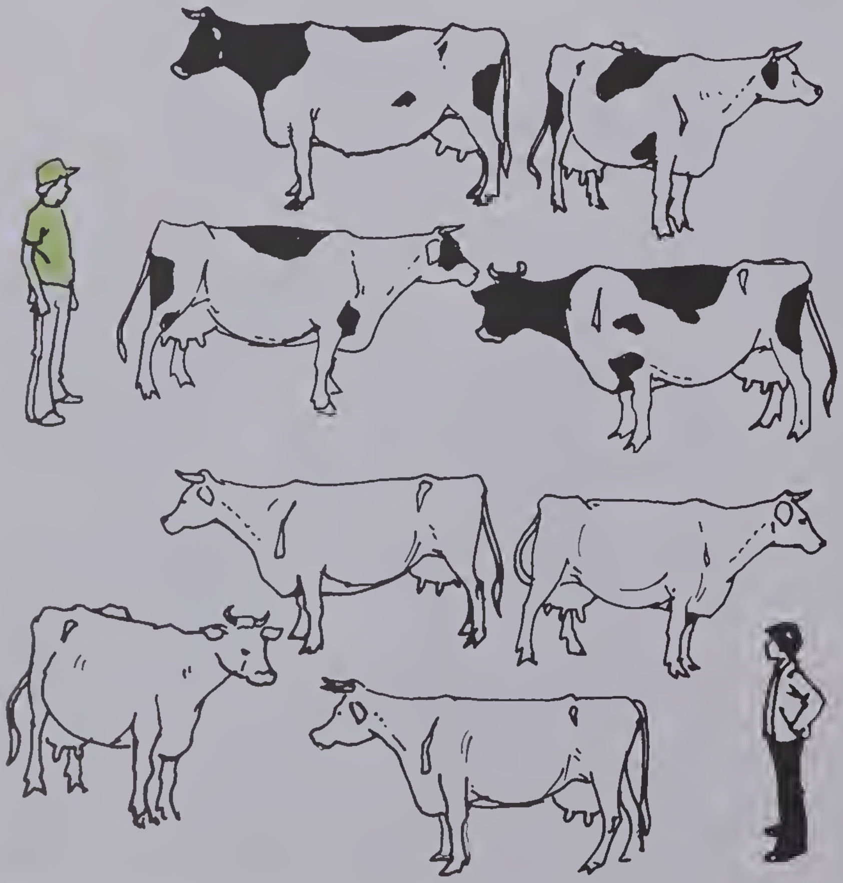
2. 5 riders each rode 5 different horses
   in the races.
   How many horses did they ride?

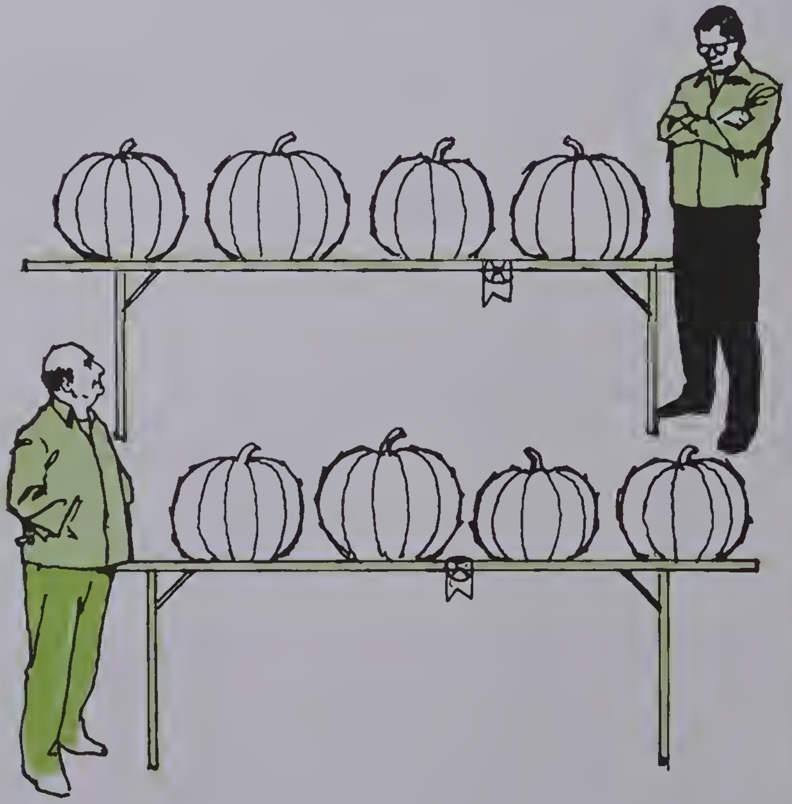
3. Twins each brought 4 cows to the show.
   How many cows did they bring?

4. 2 children each showed 1 pony.
   How many ponies did they show?

5. Margie saw 3 brown horses,
   Elayne saw 3 white horses,
   and Jackie saw 3 black horses.
   How many horses did the girls see?

6. 2 people each showed 4 prize pumpkins.
   How many pumpkins did they show?





Byway

Jump the Hurdles

×	3
4	
2	
1	
5	

×	5
4	
1	
3	
2	

×	2
1	
3	
4	
5	

×	4
2	
1	
3	
5	

Secret Message

Solve.
Use your answers to find the secret message below.

$a = 2 \times 4$
$a = ?$

$c = 3 \times 5$
$c = ?$

$e = 5 \times 2$
$e = ?$

$g = 1 \times 5$
$g = ?$

$h = 5 \times 5$
$h = ?$

$m = 1 \times 3$
$m = ?$

$n = 4 \times 4$
$n = ?$

$o = 3 \times 4$
$o = ?$

$r = 1 \times 4$
$r = ?$

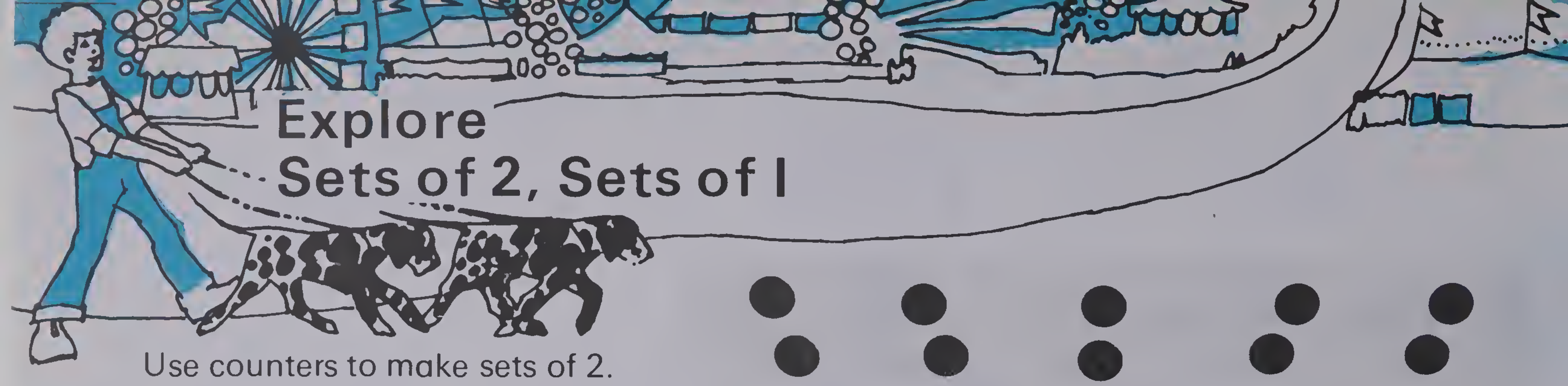
$s = 3 \times 3$
$s = ?$

$t = 5 \times 4$
$t = ?$

$w = 2 \times 3$
$w = ?$

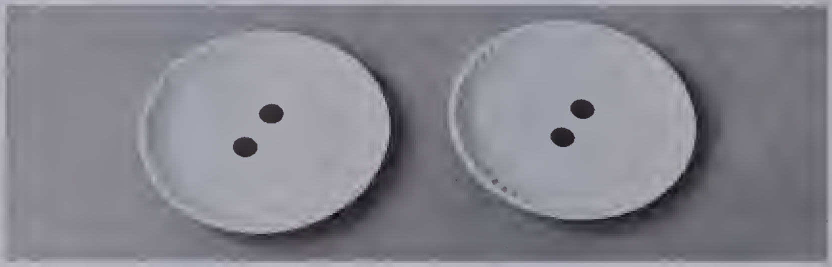
6 25 12   6 12 16   20 25 10   4 8 15 10?

20 25 10   3 12 4 5 8 16   25 12 4 9 10.

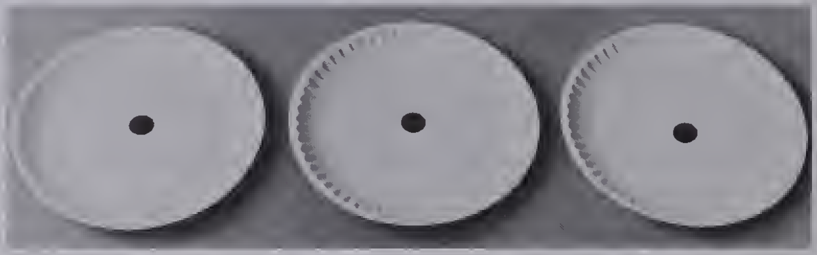


Explore
Sets of 2, Sets of 1

Use counters to make sets of 2.
How many sets can you make?
Use 2 counters,
4 counters,
6 counters,
8 counters,
10 counters.



Make sets of 1.
How many sets can you make with 1 counter,
2 counters,
3 counters,
4 counters,
5 counters?



In Action

1. Draw X's in a row.
Circle the sets.
How many sets?

8 marbles, 2 in each set

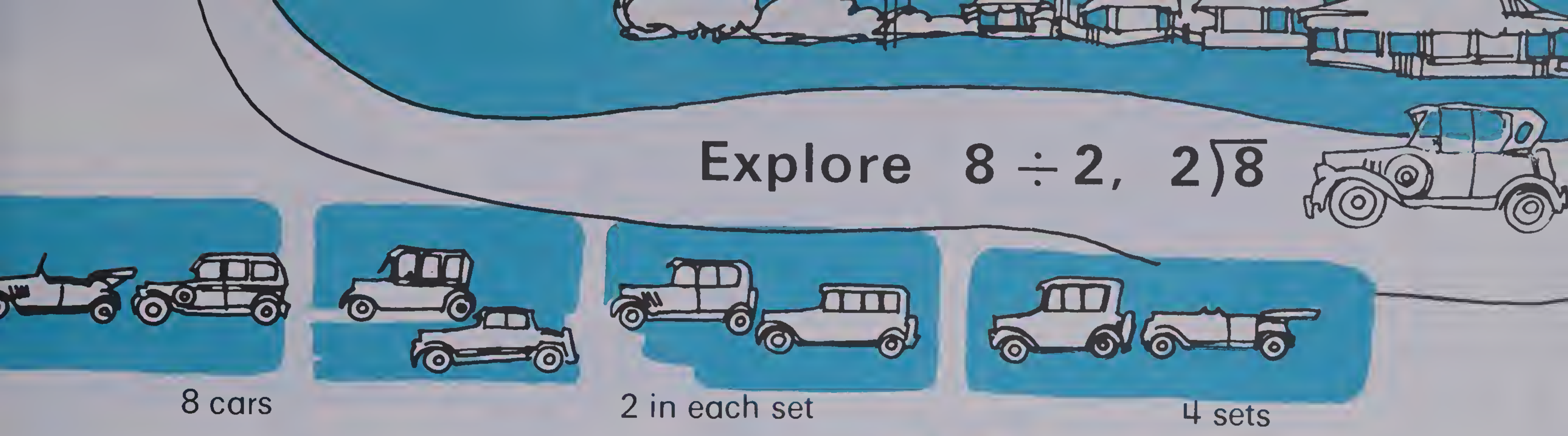
(X X)(X X)(X X)(X X)

4 sets

a) 6 cows, 2 in each set
b) 1 boy, 1 in each set
c) 10 apples, 2 in each set
d) 8 peaches, 2 in each set
e) 4 girls, 2 in each set
f) 5 eggs, 1 in each set
g) 3 horses, 1 in each set
h) 2 plums, 2 in each set
i) 4 pears, 1 in each set
j) 2 pigs, 1 in each set

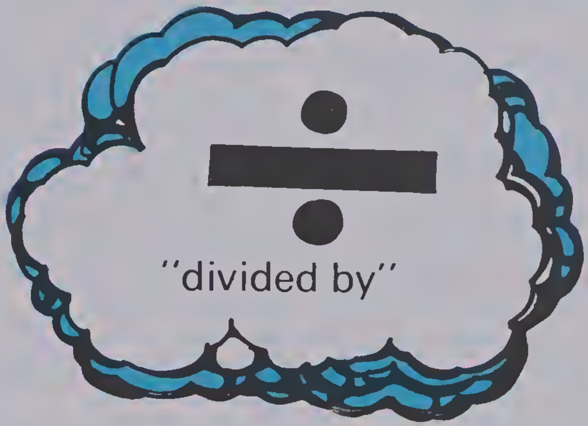
2. How many sets of 2 are there?
a) 10 pumpkins
b) 4 dogs
c) 8 chickens
d) 6 sheep
e) 2 kittens

Explore $8 \div 2$, $2\overline{)8}$



The sentence is $8 \div 2 = 4$.

We can also write $2\overline{)8}$ with 4 above.
The division sentence says
"8 divided by 2 equals 4".



In Action

1. Use counters.
   Find the answers.

a) $5 \div 1 = ?$
b) $6 \div 2 = ?$
c) $2 \div 2 = ?$
d) $2\overline{)4}$
e) $1\overline{)3}$
f) $2\overline{)10}$

2. Complete.

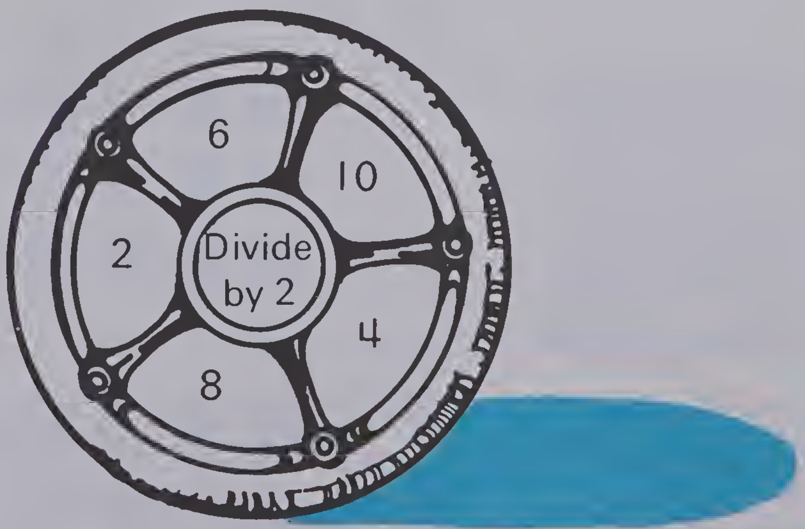
a) $10 \div 2 = ?$
b) $5 \div 1 = ?$
c) $6 \div 2 = ?$
d) $4 \div 1 = ?$
e) $2 \div 2 = ?$
f) $3 \div 1 = ?$
g) $8 \div 2 = ?$
h) $1 \div 1 = ?$
i) $1\overline{)2}$
j) $2\overline{)8}$
k) $2\overline{)10}$
l) $2\overline{)2}$
m) $2\overline{)4}$
n) $1\overline{)1}$
o) $2\overline{)6}$
p) $1\overline{)4}$

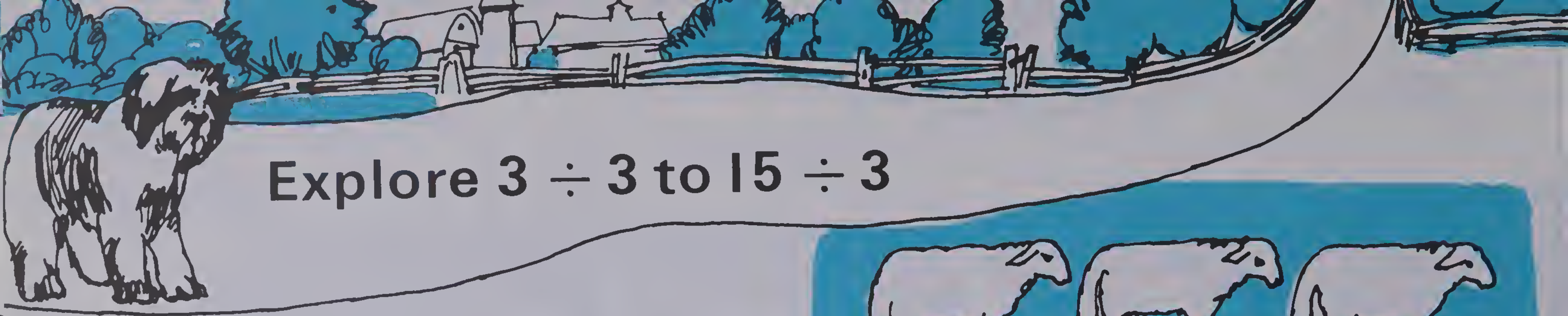
3. Complete the charts in your notebook.

÷	2
10	
6	
8	
4	
2	

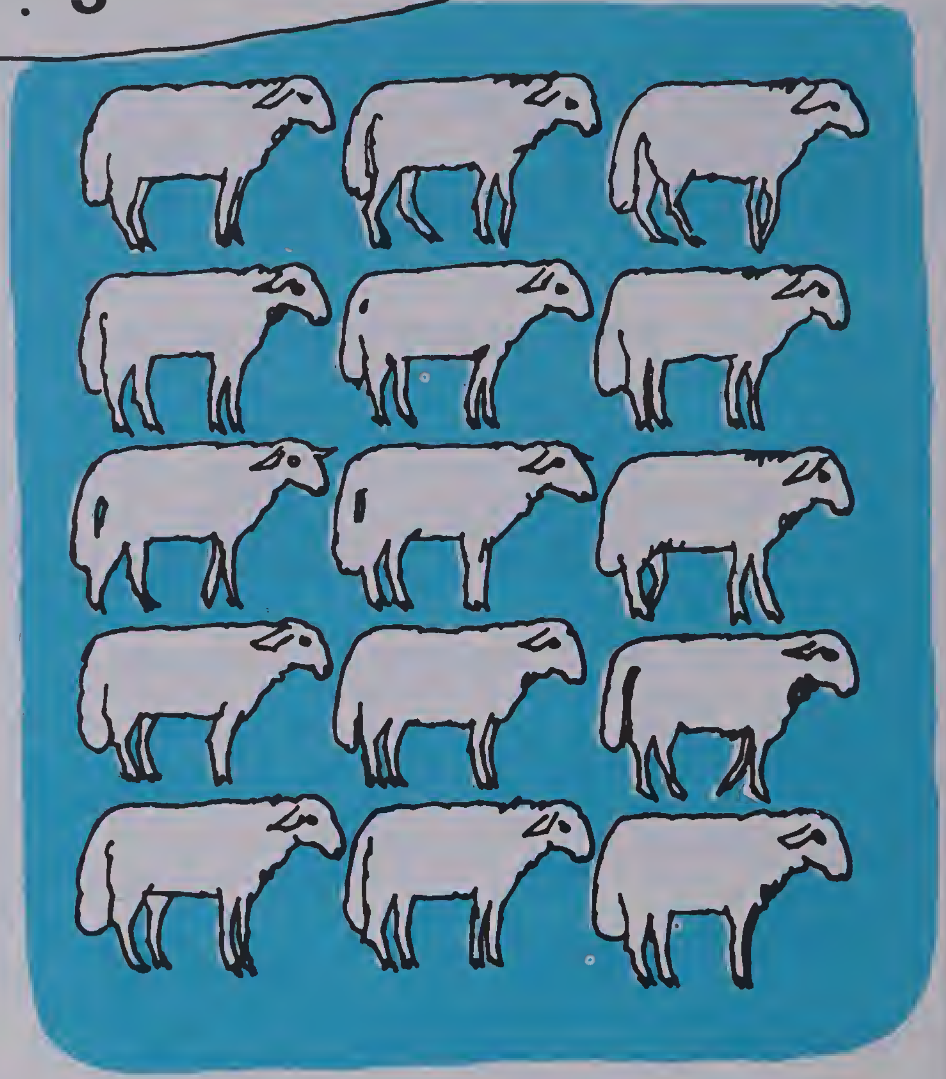
÷	1
3	
5	
2	
4	
1	

4. Complete the division wheel in your notebook.





Explore 3 ÷ 3 to 15 ÷ 3



Start at 3.
Count to 15 by threes.

Start at 15.
Count back to 0 by threes.

How many threes are there in 15?
Cover one row of sheep.
How many threes are there in 12?
Cover two rows.
How many threes are there in 9? in 6? in 3?

Write the division sentences.

In Action

1. Complete.
   Look for number patterns.

$5 \times 3 = ?$
$4 \times 3 = ?$
$3 \times 3 = ?$
$2 \times 3 = ?$
$1 \times 3 = ?$

$15 \div 3 = ?$
$12 \div 3 = ?$
$9 \div 3 = ?$
$6 \div 3 = ?$
$3 \div 3 = ?$

2. Complete.

a) $12 \div 3 = ?$
b) $1 \times 3 = ?$
c) $4 \div 2 = ?$
d) $4 \times 3 = ?$
e) $15 \div 3 = ?$
f) $2 \div 2 = ?$
g) $6 \div 3 = ?$
h) $5 \times 3 = ?$
i) $9 \div 3 = ?$
j) $3 \div 3 = ?$

3. Divide.

$3\overline{)3}$ $3\overline{)6}$ $1\overline{)4}$ $2\overline{)4}$

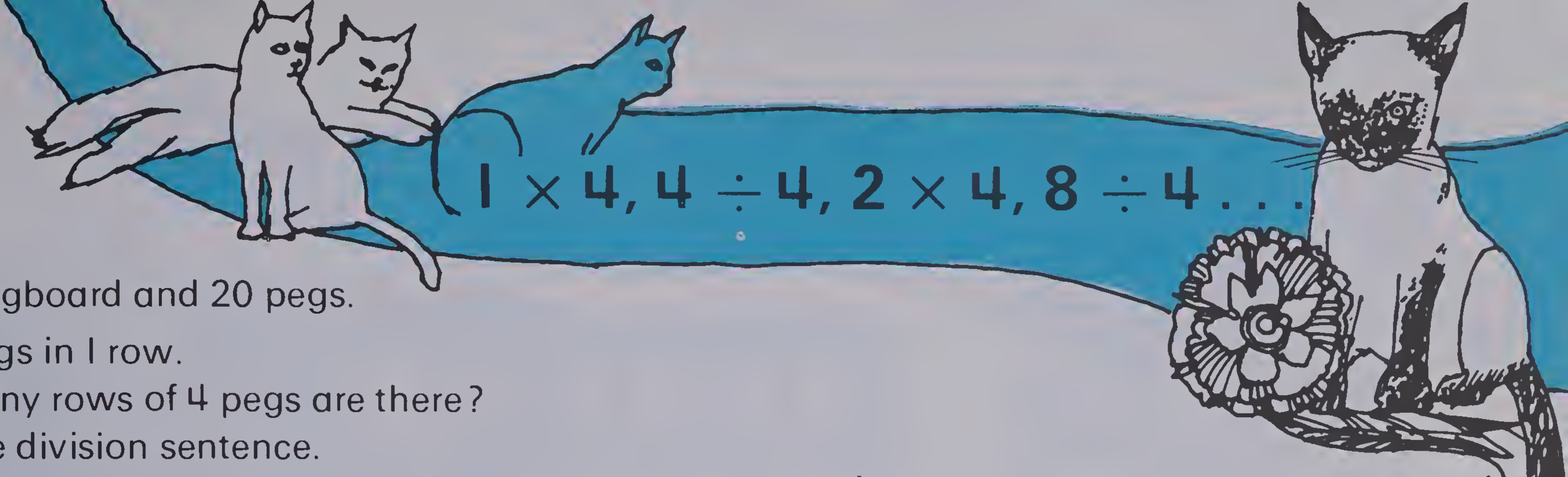
$1\overline{)2}$ $3\overline{)3}$ $2\overline{)2}$ $1\overline{)3}$

$3\overline{)15}$ $3\overline{)12}$ $1\overline{)5}$ $2\overline{)6}$

4. Multiply.

$\begin{array}{r}3\\3\\\hline\end{array}$ $\begin{array}{r}3\\4\\\hline\end{array}$ $\begin{array}{r}1\\1\\\hline\end{array}$ $\begin{array}{r}2\\2\\\hline\end{array}$ $\begin{array}{r}3\\5\\\hline\end{array}$ $\begin{array}{r}5\\2\\\hline\end{array}$

$\begin{array}{r}1\\2\\\hline\end{array}$ $\begin{array}{r}2\\3\\\hline\end{array}$ $\begin{array}{r}1\\3\\\hline\end{array}$ $\begin{array}{r}2\\5\\\hline\end{array}$ $\begin{array}{r}0\\5\\\hline\end{array}$ $\begin{array}{r}4\\3\\\hline\end{array}$



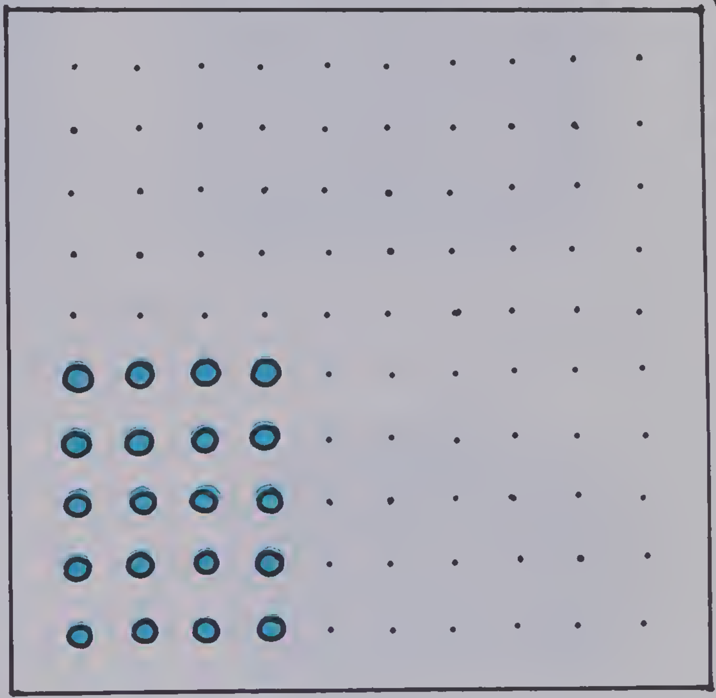
$1 \times 4, 4 \div 4, 2 \times 4, 8 \div 4 \ldots$

Use a pegboard and 20 pegs.

Put 4 pegs in 1 row.
How many rows of 4 pegs are there?
Write the division sentence.

Put 4 more pegs in another row.
How many pegs are there altogether?
How many rows of 4 pegs are there?
Did you write the division sentence like this? $8 \div 4 = 2$

Make 3, 4, and 5 rows of 4 pegs.
Write the division sentences.



In Action

1. Divide.

$4\overline{)16}$ $4\overline{)4}$ $4\overline{)8}$ $4\overline{)20}$ $4\overline{)12}$

2. Multiply.
You don't really need to say a multiplication sentence.
Look at the numbers.
Write the answer.

a) (2,4)
b) (5,1)
c) (3,1)
d) (1,4)
e) (3,4)
f) (1,2)
g) (4,4)
h) (2,1)
i) (4, 3)

3. Divide.
Don't say a division sentence.

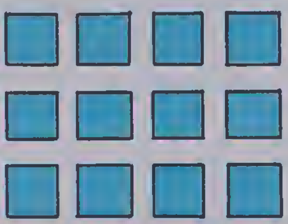
a) (20,4)
b) (6,3)
c) (15,3)
d) (16,4)
e) (12,4)
f) (4,4)
g) (9,3)
h) (8,4)
i) (10, 2)

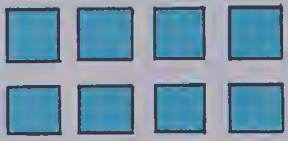
4. Complete.
Look for number patterns.

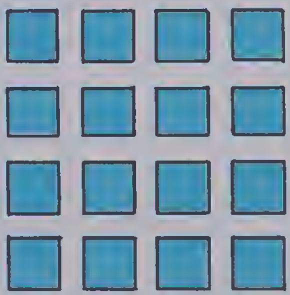
$5 \times 4 = ?$
$4 \times ? = 16$
$? \times 4 = 12$
$2 \times 4 = ?$
$1 \times ? = 4$

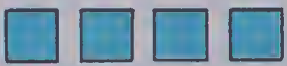
$20 \div 4 = ?$
$16 \div 4 = ?$
$12 \div ? = 3$
$? \div 4 = 2$
$4 \div 4 = ?$

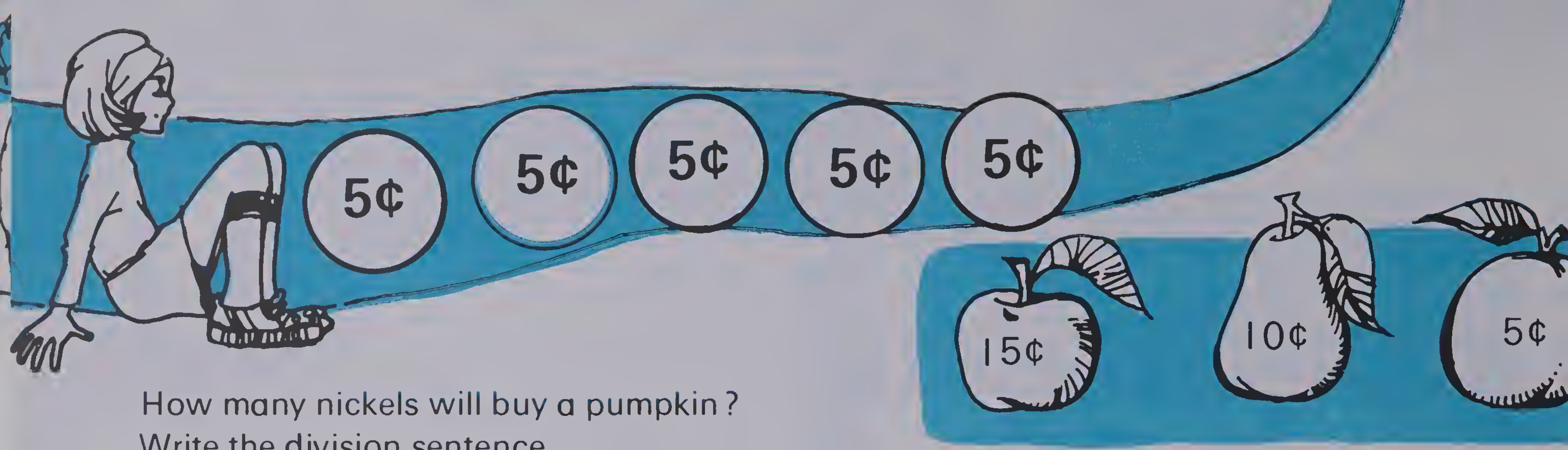
5. Write division sentences.

a) 

b) 

c) 

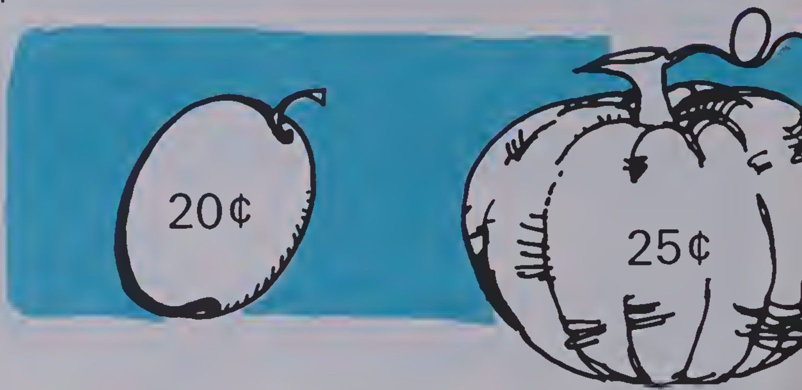
d) 



How many nickels will buy a pumpkin?
Write the division sentence.

Tell how many nickels you would need to buy each piece of fruit.
Write the division sentences.

Kizwan wants to buy a pear and a peach.
How many nickels does he need?



In Action

1. Complete.

a) 5 × 5 = ?
25 ÷ 5 = ?

b) 1 × 5 = ?
5 ÷ 5 = ?

d) 2 × 5 = ?
10 ÷ 5 = ?

e) 4 × 5 = ?
20 ÷ 5 = ?

c) 3 × 5 = ?
15 ÷ 5 = ?

2. Multiply.

2 × 2 = ?
4 × 5 = ?
2 × 4 = ?
2 × 5 = ?

0 × 4 = ?
3 × 5 = ?
5 × 5 = ?
4 × 1 = ?

5 × 1 = ?
3 × 4 = ?
5 × 2 = ?
0 × 3 = ?

3. Divide.

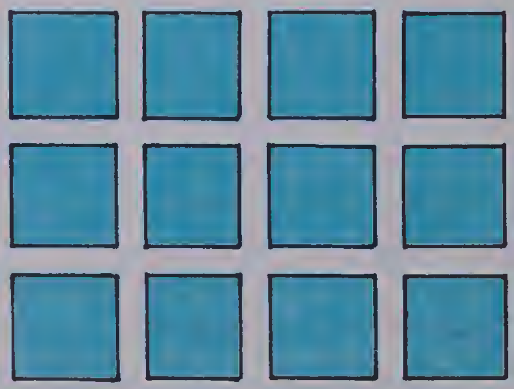
10 ÷ 5 = ?
3 ÷ 3 = ?
5 ÷ 5 = ?
12 ÷ 4 = ?

25 ÷ 5 = ?
10 ÷ 2 = ?
12 ÷ 3 = ?
20 ÷ 5 = ?

12 ÷ 3 = ?
4 ÷ 4 = ?
9 ÷ 3 = ?
16 ÷ 4 = ?

4. Use counters.

Make 3 rows and 4 columns.

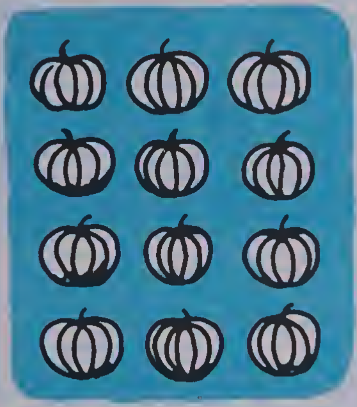


Write a multiplication sentence and a division sentence.

Retrace Your Steps

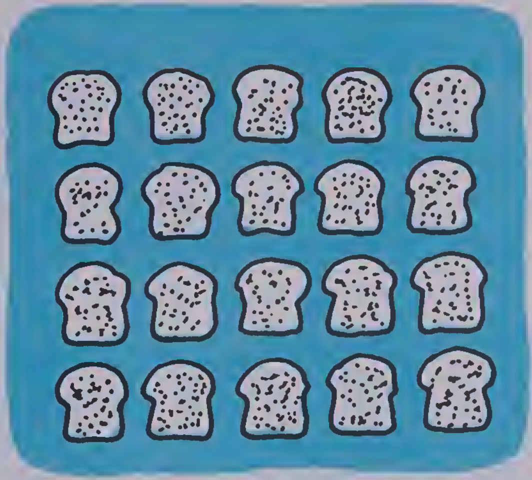
1. Complete the sentences.
   Look for the patterns.

a)



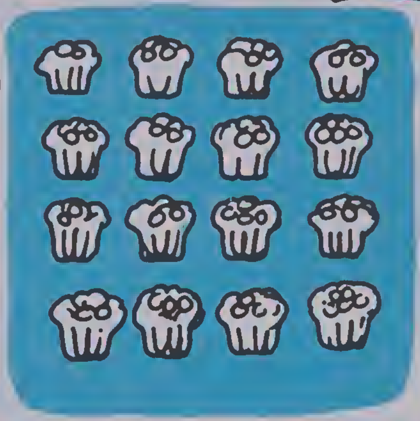
? × 3 = 12
12 ÷ 3 = ?

b)



? × 5 = 20
20 ÷ 5 = ?

c)



? × 4 = 16
16 ÷ 4 = ?

2. Complete the multiplication sentence.
   Write the division sentence.

a) 5 × ? = 15 b) ? × 5 = 10 c) ? × 5 = 20 d) 1 × ? = 5

5 × 5 = 25
25 ÷ 5 = 5

3. Complete the division sentence.
   Write the multiplication sentence.

a) 8 ÷ 4 = ? b) 16 ÷ ? = 4 c) 4 ÷ 4 = ? d) 12 ÷ ? = 3

20 ÷ 4 = 5
5 × 4 = 20

4. Make charts in your notebook.

a)

×	
(3,5)	
(5,3)	

÷	
(15,5)	
(15,3)	

b)

×	
(2,3)	
(3,2)	

÷	
(6,3)	
(6,2)	

c)

×	
(3,4)	
(4,3)	

÷	
(12,4)	
(12,3)	

d)

÷	
(8,4)	
(8,2)	

×	
(2,4)	
(4,2)	

e)

÷	
(20,5)	
(20,4)	

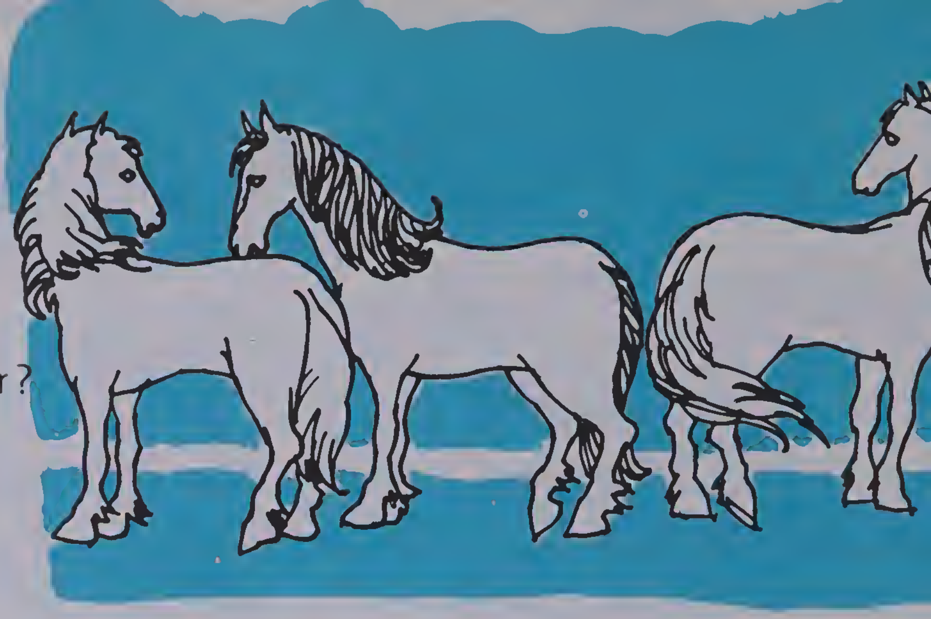
×	
(4,5)	
(5,4)	

f)

÷	
(10,5)	
(10,2)	

×	
(2,5)	
(5,2)	

Harvest Time



June saw 3 horses.
How many legs do the horses have altogether?

3 × 4 = 12
The horses have 12 legs.

1. The March twins picked 6 apples.
   Each twin picked the same number of apples.
   How many apples did each pick?

2. The milk from 4 cows will
   fill a milk can.
   About how many milk cans will
   be needed for 12 cows?

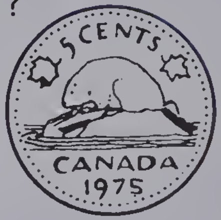
3. May gave 15 cherries to 3 of her friends.
   She gave the same number of cherries
   to each friend.
   How many cherries did each get?

4. Juan had 9 cabbages in his garden.
   There were 3 cabbages in each row.
   How many rows of cabbage
   did Juan have?

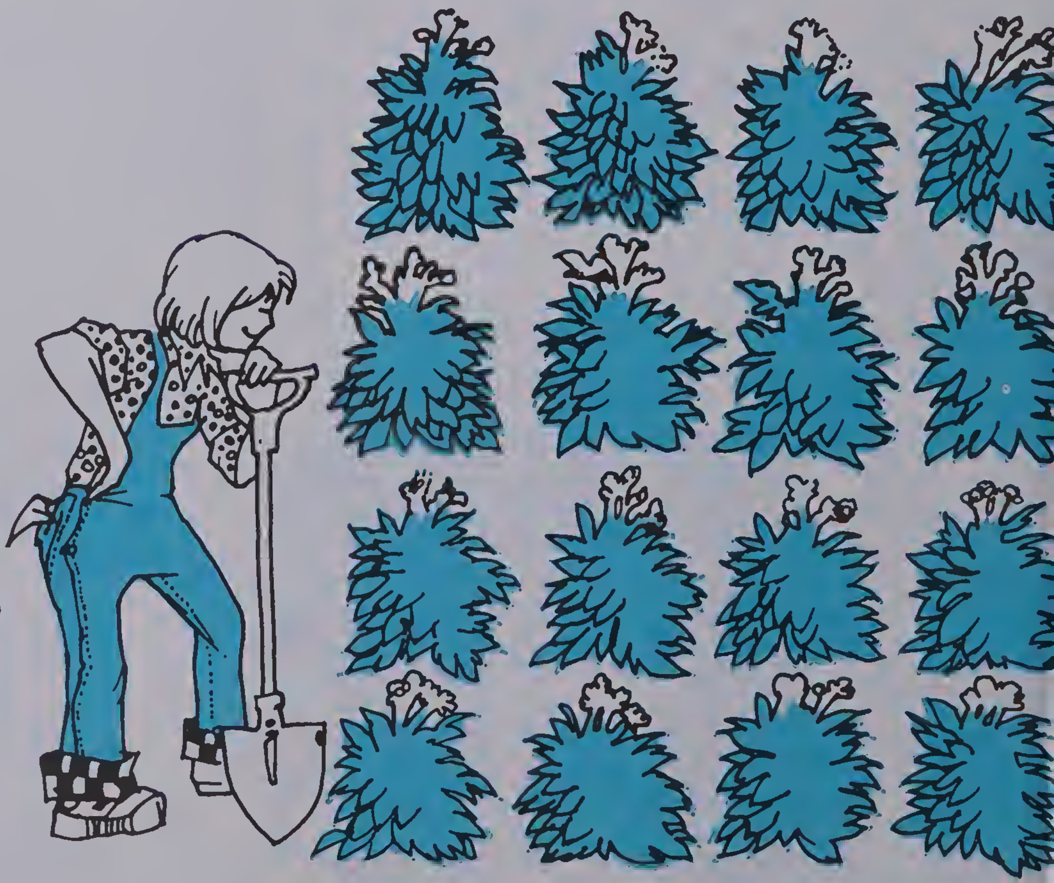
5. April and her friends rode to the
   fair in 2 cars.
   There were 5 children in each car.
   How many children went to the fair?

6. The farmer used a combine
   to harvest 6 small wheat fields.
   He combined the wheat in 3 days.
   How many fields did he combine
   each day?

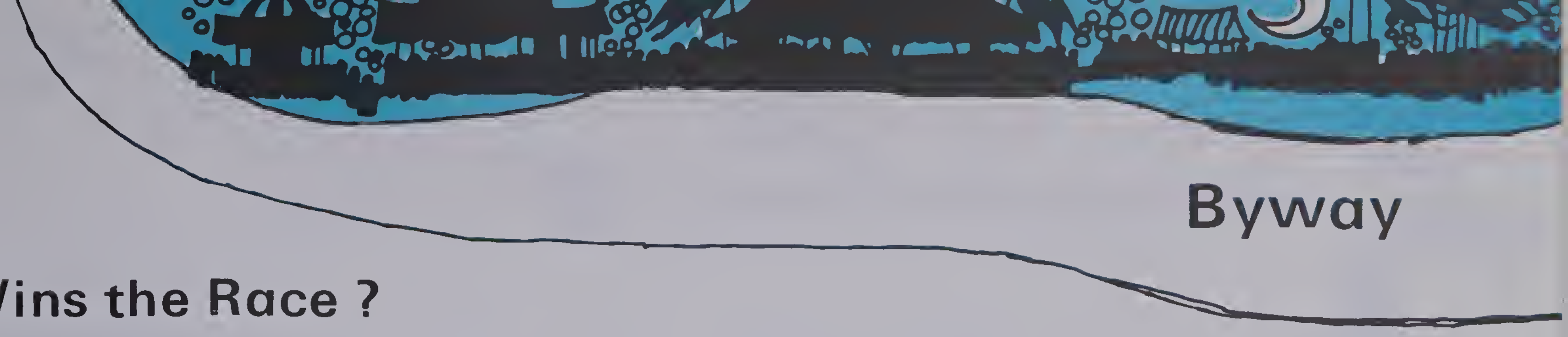
7. Abraham had 5 nickels.
   How many cents did he have?



8. Rita dug up 4 rows of potato plants.
   There were 4 plants in each row.
   How many potato plants did Rita
   dig up?



9. Create a story about 25 ÷ 5.



Who Wins the Race ?

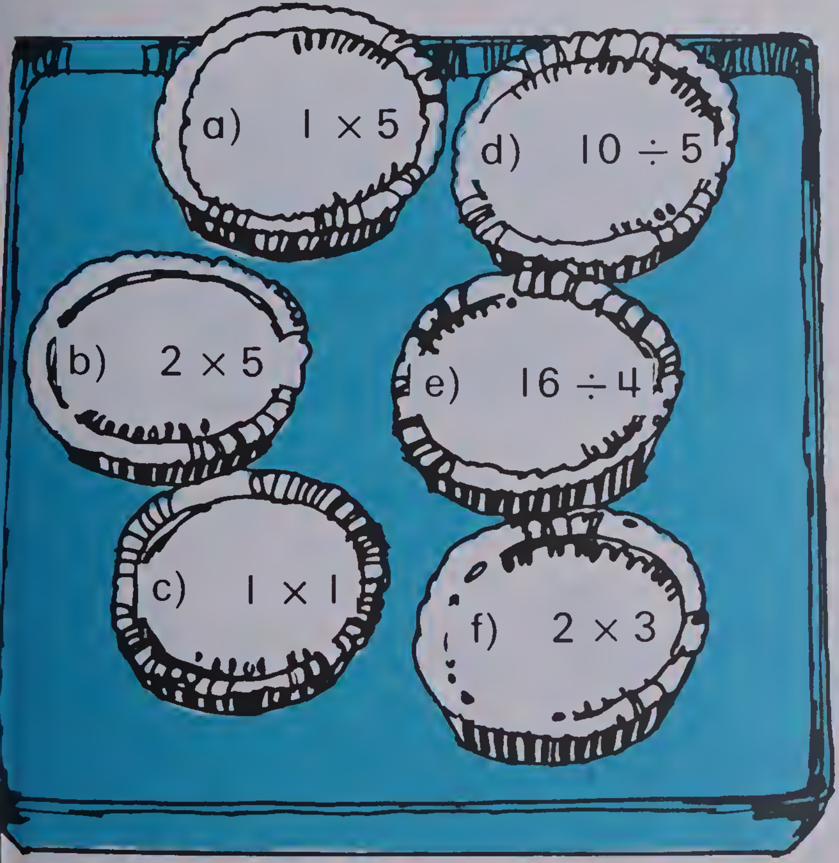
Work with a partner.
Count forward or back to finish a race.
Take turns racing.
How well did you do ?

●	2	4		10
○	3	6		15
●	25	20		0
○	20	16		0
●	5	10		25
○	4	8		20
●	15	12		0
○	5	4		0

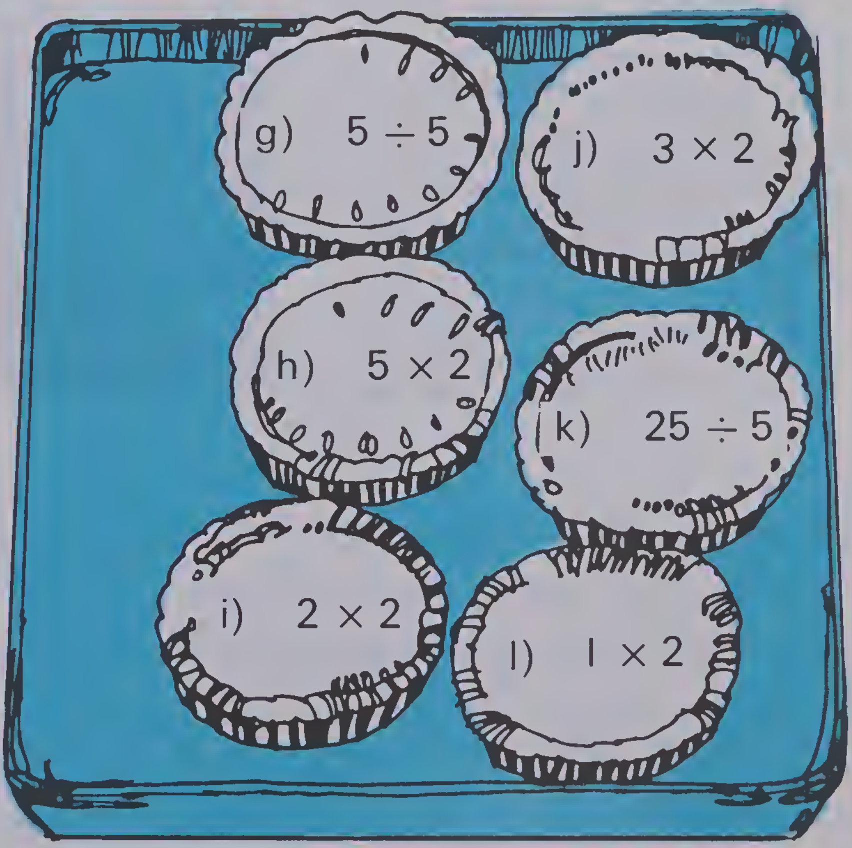
FINISH

A Pie for a Pie

Which answers are the same ? Match the pies.

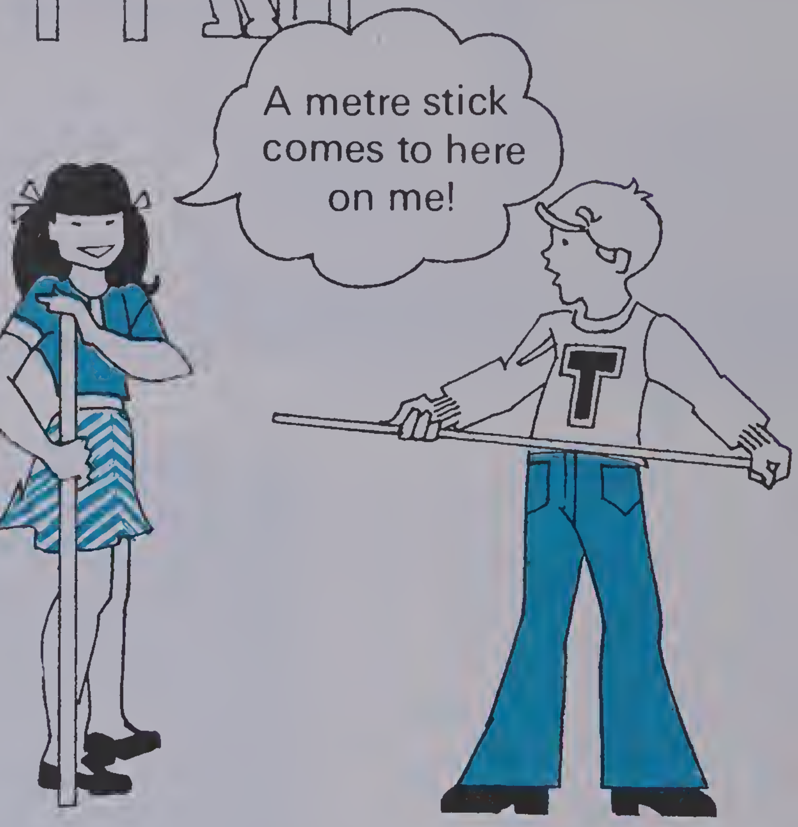


a) 1 × 5
d) 10 ÷ 5
b) 2 × 5
e) 16 ÷ 4
c) 1 × 1
f) 2 × 3



g) 5 ÷ 5
j) 3 × 2
h) 5 × 2
k) 25 ÷ 5
i) 2 × 2
l) 1 × 2

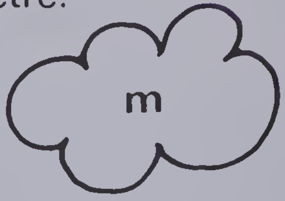
Explore the Metre

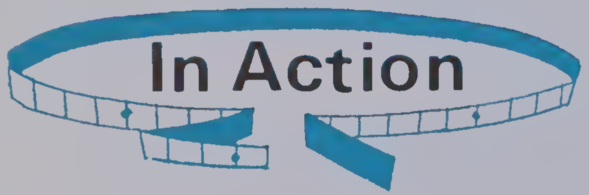

A metre stick comes to here on me!

Use a metre tape or a string
the same length as a metre tape.

Hold one end in each hand.
Spread your arms until the tape is straight.
Your hands are I m apart.

We write **m** as the symbol for metre.





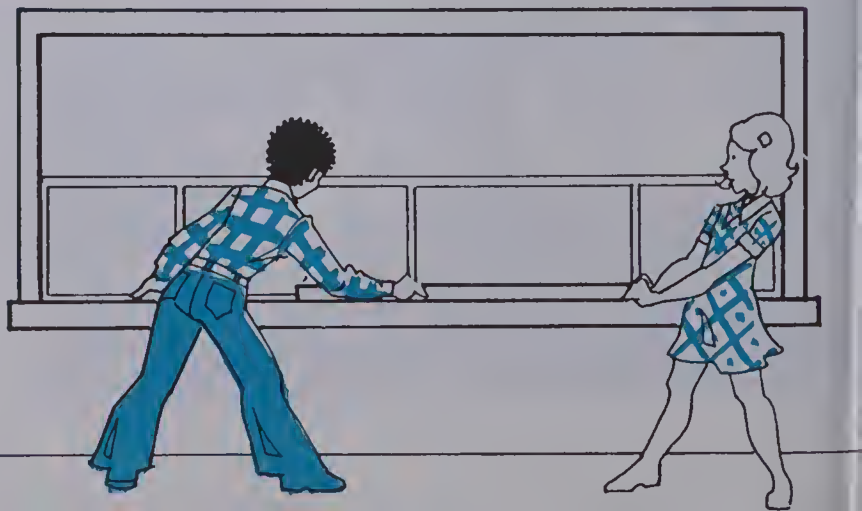
In Action

1. Find things in your classroom that are about I m long.

2. Copy the chart in your notebook.

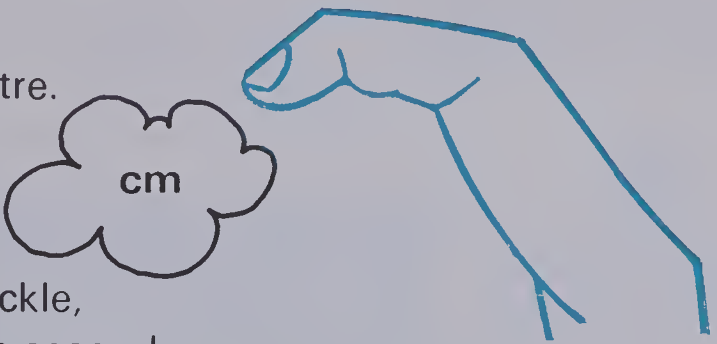
Object	About how many metres? (Guess)	About how many metres? (Measurement)
length of classroom		
width of classroom		
length of chalkboard		
length of teacher's desk		
height of a bookcase		
height of your chair		

Work with a partner.
Choose an object from the chart.
Guess the number of metres.
Now measure the object.
Was your guess close?
Complete the chart.



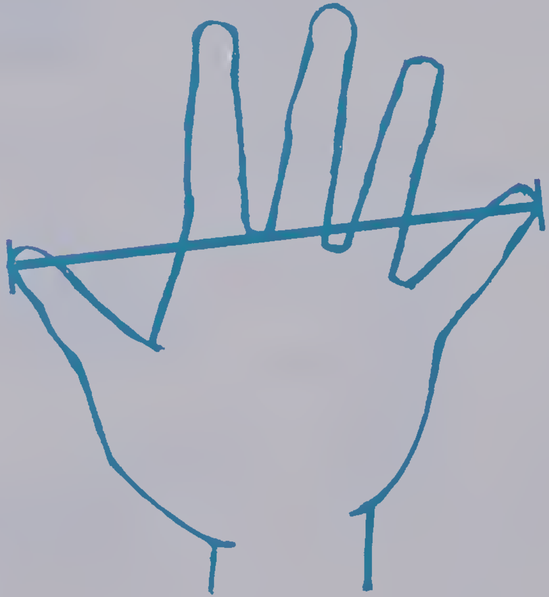
Explore the Centimetre

Use a ruler with one edge
marked in centimetres.
We write **cm** as the symbol for centimetre.



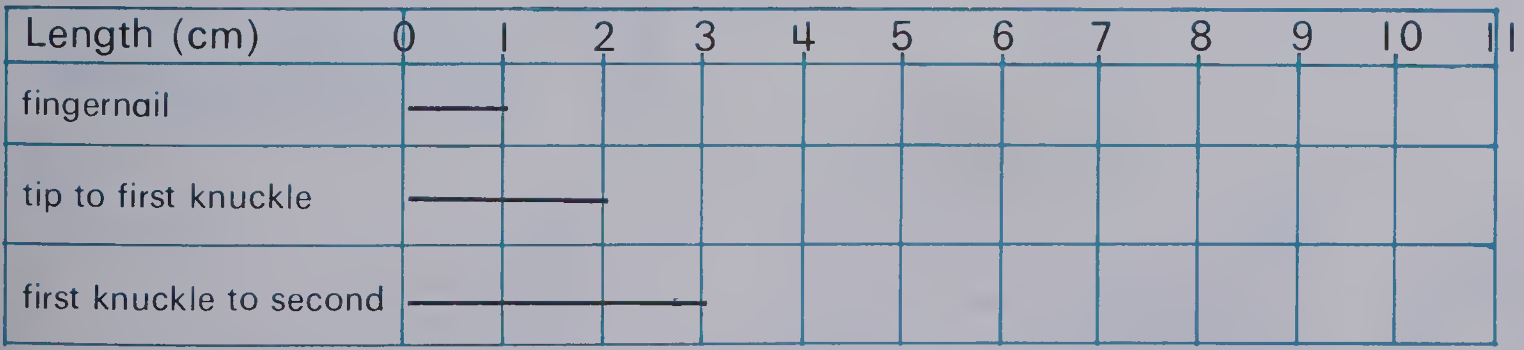
Measure your longest finger:
the width of the fingernail,
the distance from the tip to the first knuckle,
the distance from the first knuckle to the second,
the distance from the second knuckle to the third.

In Action



1. Measure other parts of your hand.
   Write the measurements like this: **10 cm**

2. Make a hand graph like the one below.
   Use paper marked into 1 cm squares.
   Draw coloured lines to show lengths.
   Use the measurements from Question 1.



3. List objects in your classroom which you think are about 1 cm to 10 cm long.
   Guess each length.
   Now measure the object.
   Was your guess close?

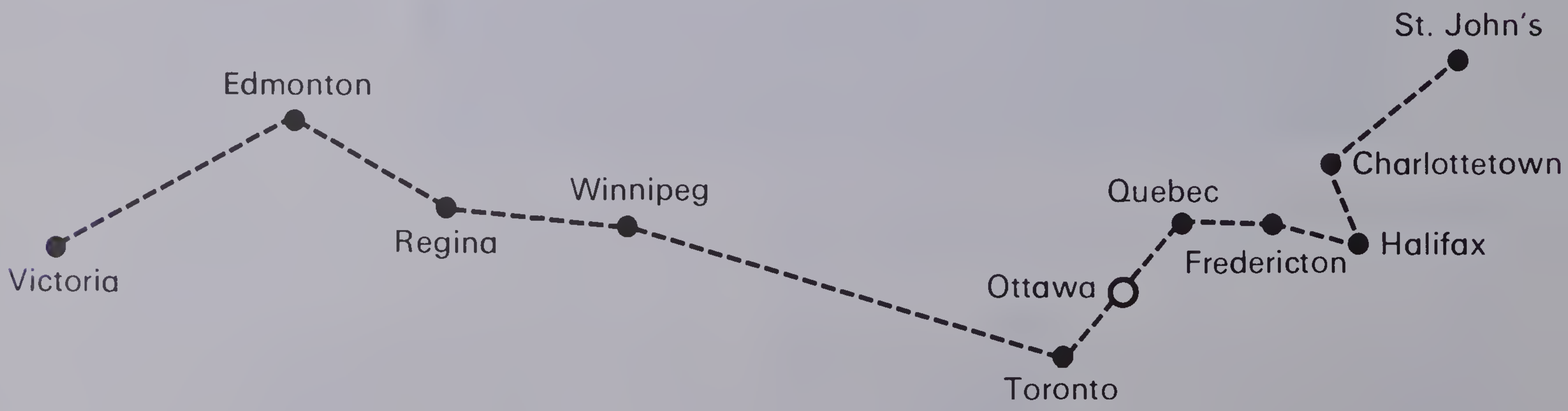
In Action

1. Copy the chart in your notebook.
Guess the length of an object before you measure it.

Object	About how many centimetres? (Guess)	About how many centimetres? (Measurement)
width of your notebook		
length of your pencil		
width of your eraser		
length of this textbook		
width of this textbook		
length of a cube		
height of your chair		
height of your desk		

2. Guess the number of centimetres from one capital city to the next on the map.
Then measure the line segment.
Move from west to east.
How many centimetres long is the path from Victoria to St. John's?

3. Work with a partner.
Choose any two cities.
Your partner puts 1 finger on each city.
He thinks of a straight line between his fingers.
Your partner guesses the number of centimetres on a straight line between his fingers.
Then your partner measures the distance between the cities.
Take turns, choosing different pairs of cities each time.


St. John's
Edmonton
Charlottetown
Winnipeg
Quebec
Halifax
Regina
Fredericton
Victoria
Ottawa
Toronto

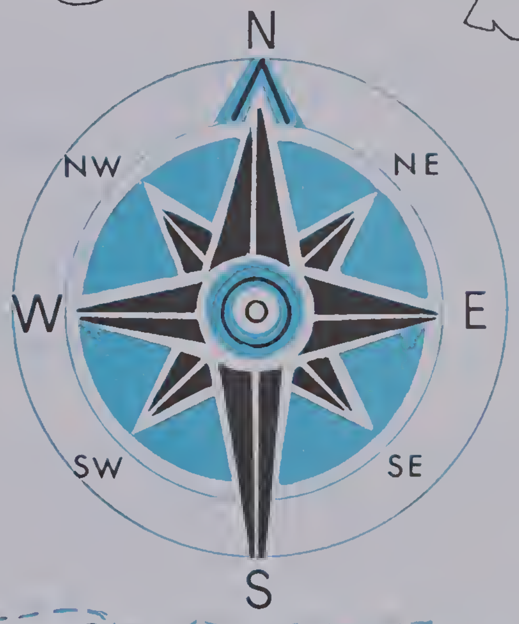
4. Use a ruler and a metre tape.
How many centimetres are in 1 m?

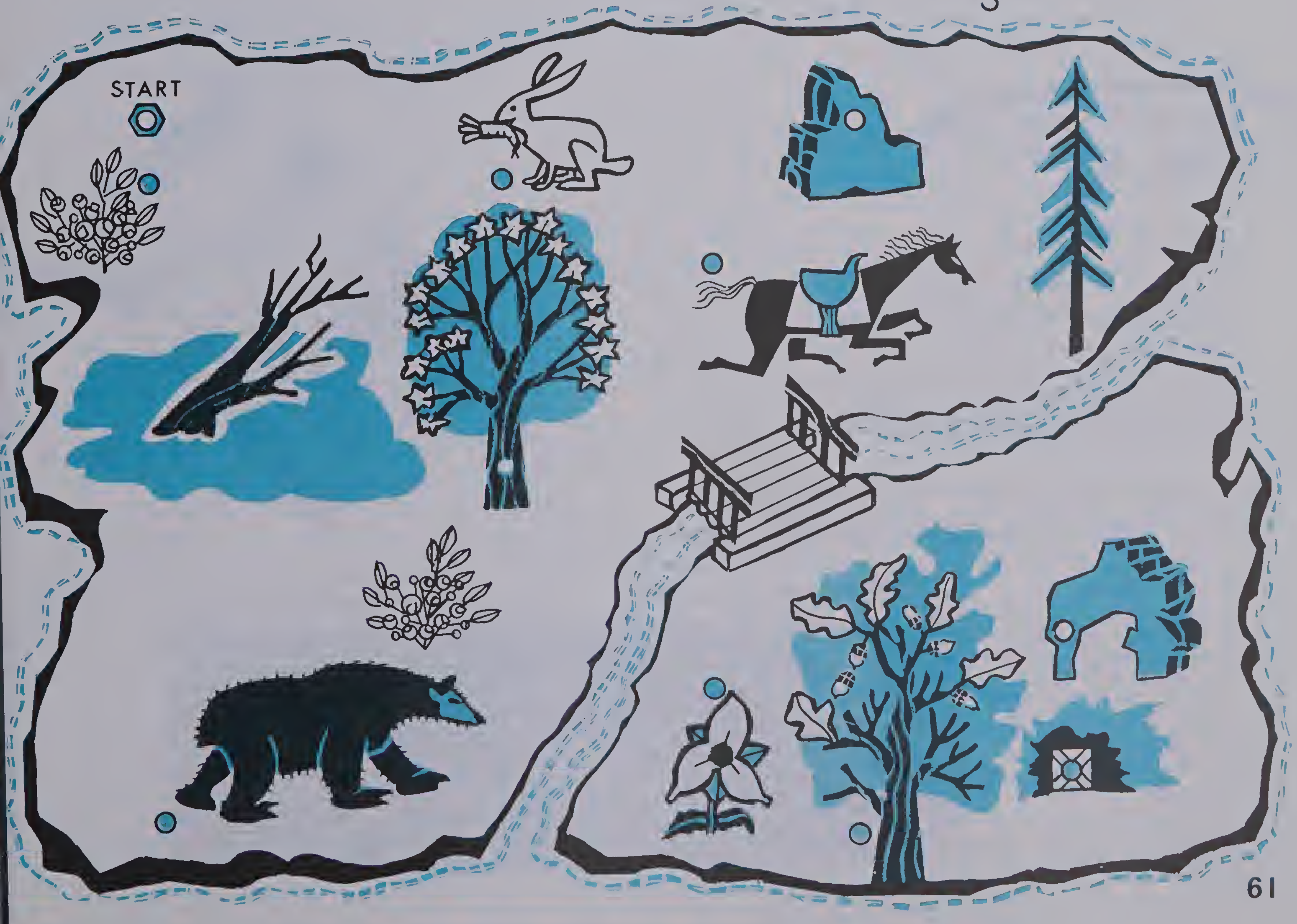
Byway

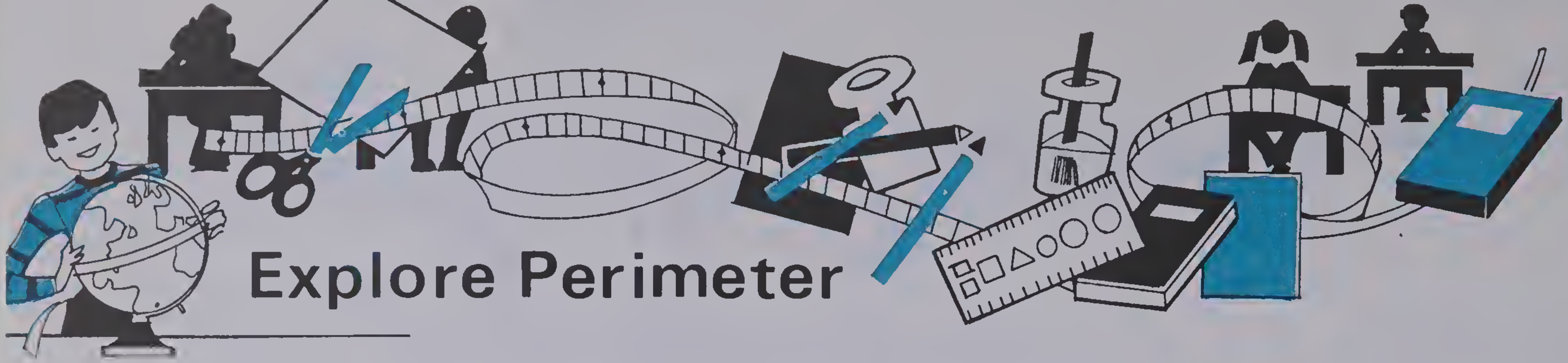
A Treasure Map

Use a ruler.
Follow the directions to the hidden treasure.
Don't draw any lines.
What objects do you see?

1. East 10 cm
2. Southwest 7 cm
3. North 4 cm
4. West 5 cm
5. South 9 cm
6. Northeast 11 cm
7. South 6 cm
8. Southeast 3 cm
9. Northeast 4 cm
10. South 2 cm



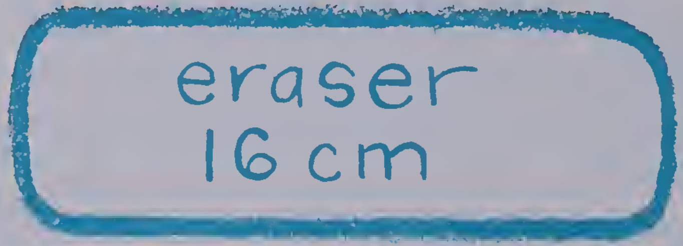




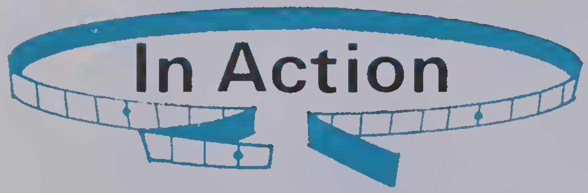
Explore Perimeter

The perimeter of an object is the distance around it.

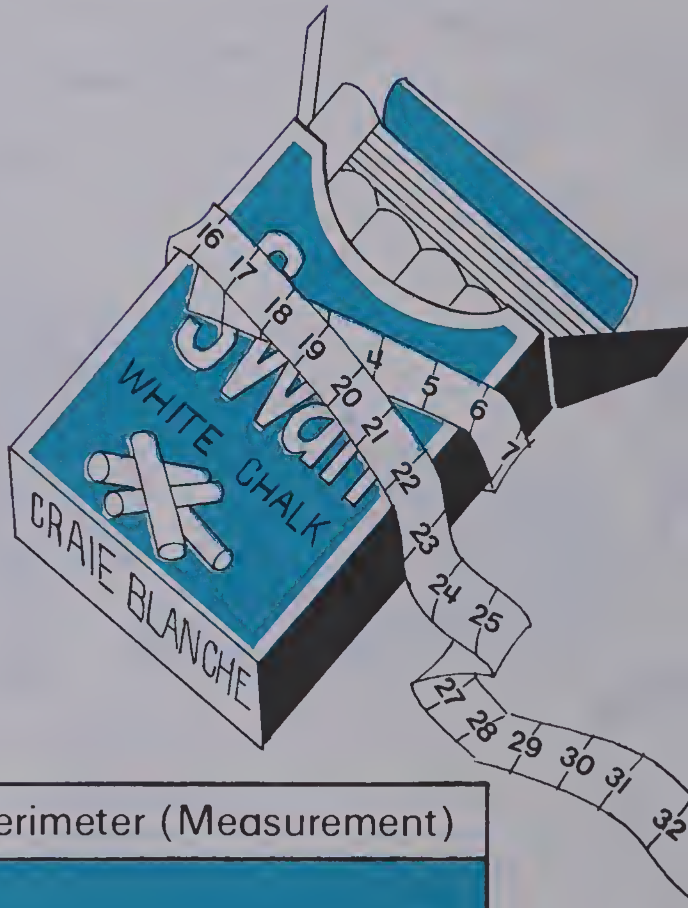
Draw around your eraser.


eraser
16 cm

Wrap a metre tape around the eraser, starting at one end.
What is the distance around your eraser?
Write the answer on your drawing.



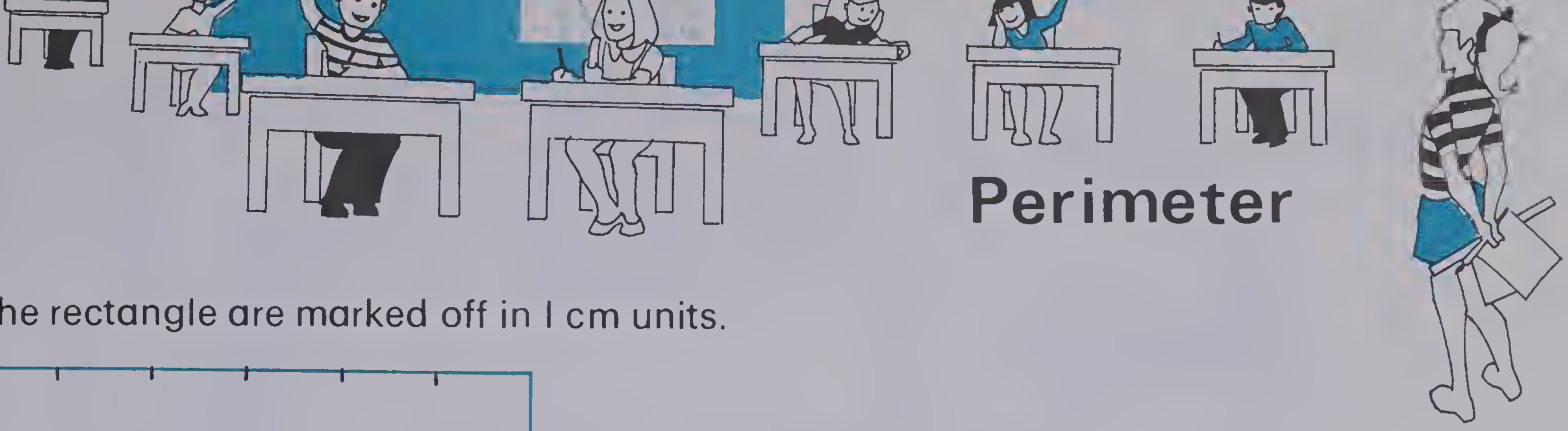
In Action


Swan
WHITE CHALK
CRAIE BLANCHE
16 17 18 19 20 21 22 23 24 25 27 28 29 30 31 32
4 5 6 7

1. Choose 5 objects.
   Draw around an object.
   Wrap your metre tape around it.
   What is its perimeter?
   Write the answer on the drawing.
   Do the same for the other objects.

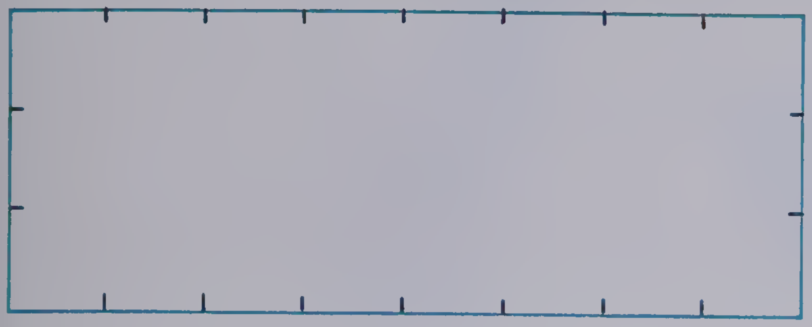
2. Complete the chart in your notebook.
   Don't forget to guess each perimeter first!

Object	Perimeter (Guess)	Perimeter (Measurement)
box of crayons		
this textbook		
chalkboard brush		
paint box		
block		
ruler		



Perimeter

The sides of the rectangle are marked off in 1 cm units.

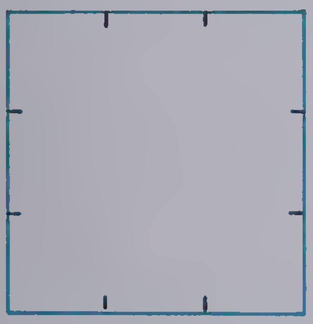


What is the perimeter of the rectangle?
Count the 1 cm units to find out.

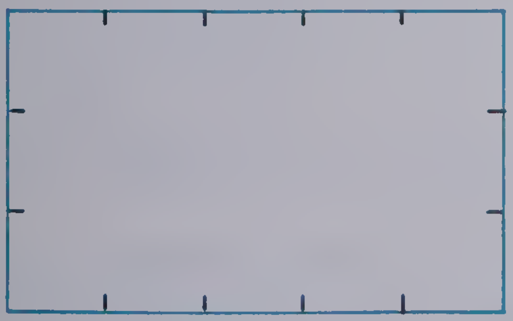
In Action

1. Find the perimeter of each figure.

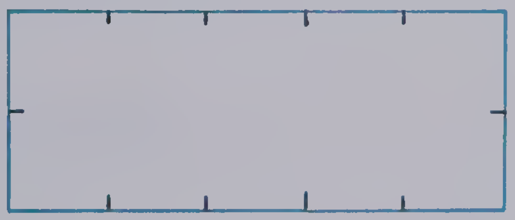
a)



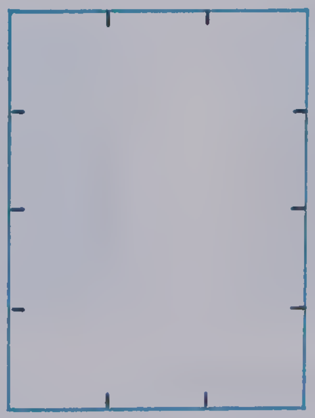
b)



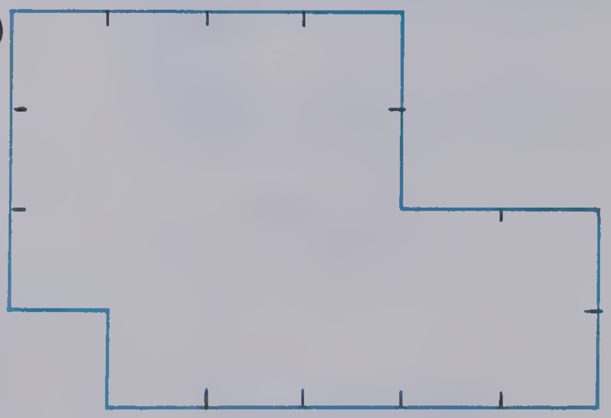
c)



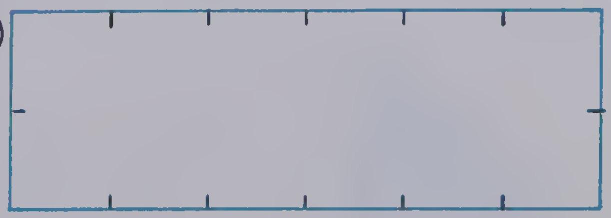
d)



e)

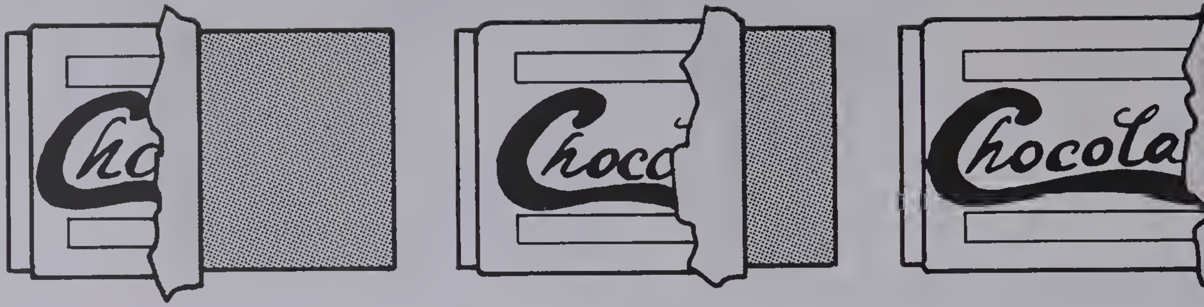


f)

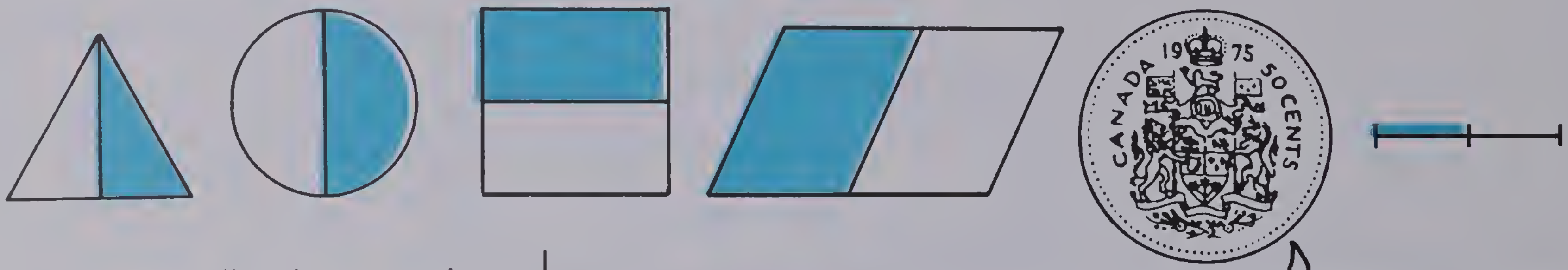


2. Work with a partner.
Use paper marked into 1 cm squares.
Join points to make figures like those in Question 1.
Ask your partner to find the perimeters.

Explore $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$


Cho
Choco
Chocola

Each picture shows $\frac{1}{2}$.

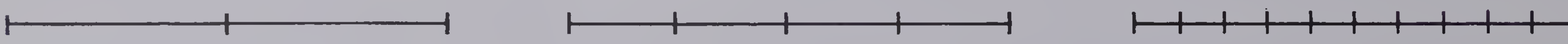

CANADA 1975 50 CENTS

Draw pictures like these to show $\frac{1}{4}$.

Draw pictures to show $\frac{1}{10}$.

Why do you think of $\frac{1}{2}$ here?

How many parts does each line segment have?

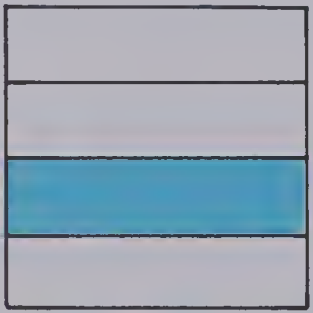


What does each part show?

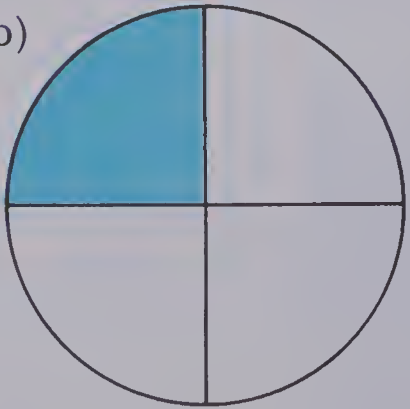
In Action

1. Which pictures show $\frac{1}{4}$?

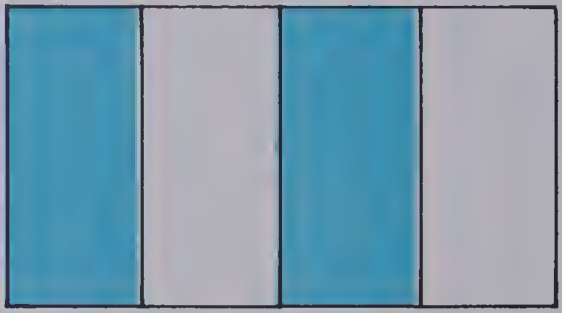
a)



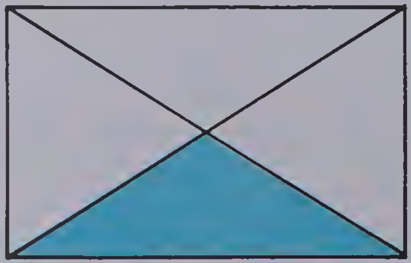
b)



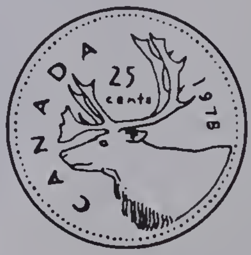
c)



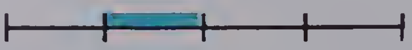
d)



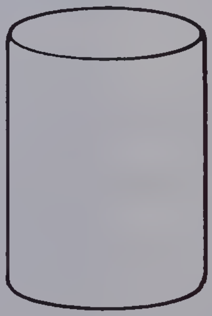
e)


CANADA 25 cents 1978

f)

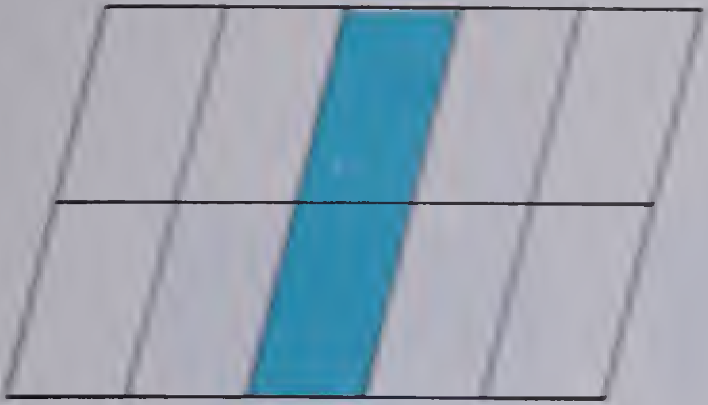


g)

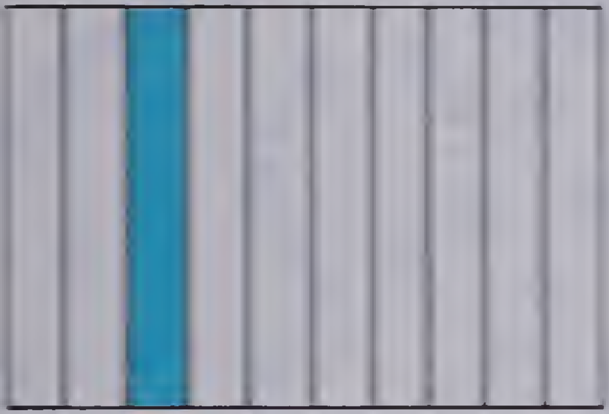


2. Which pictures show $\frac{1}{10}$?

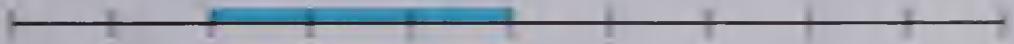
a)



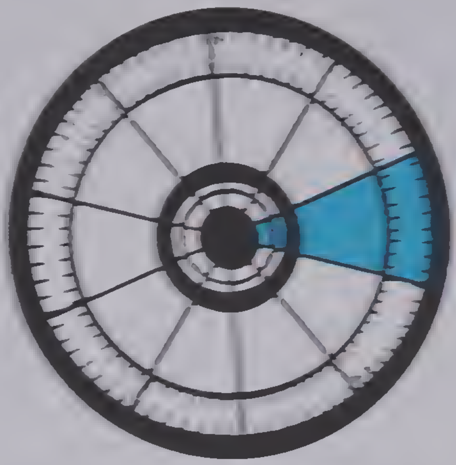
b)



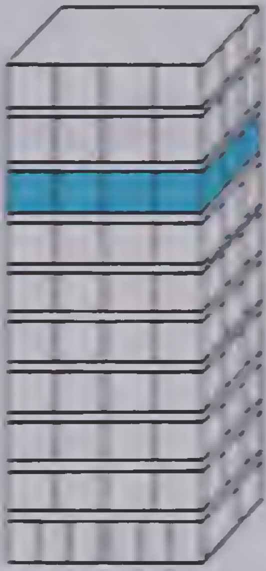
c)



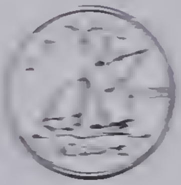
d)



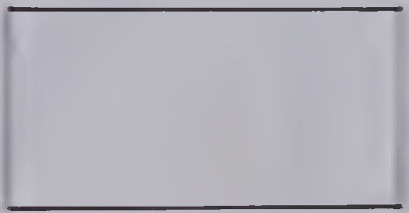
e)



f)



3. Draw a rectangle.
Divide it into 4 equal parts.
Show $\frac{1}{4}$.
How many ways can you do this?



4. Use a ruler.
Draw a line segment 10 cm long.
Show $\frac{1}{10}$.

5. Draw a line segment 12 cm long.
Show $\frac{1}{4}$.

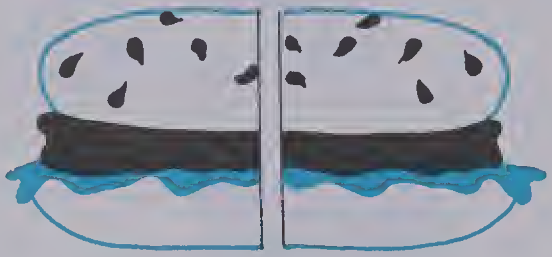
6. Draw a line segment 8 cm long.
Show $\frac{1}{2}$.

7. Draw a line segment 20 cm long.
Show $\frac{1}{10}$.

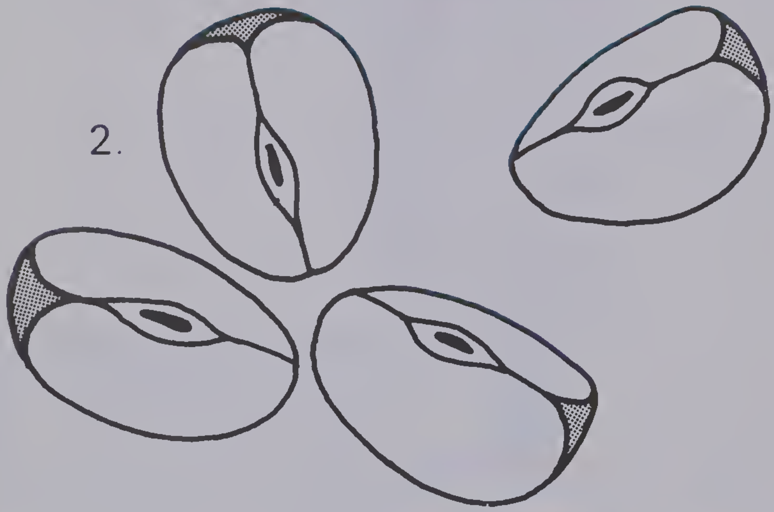
Retrace Your Steps

What fraction does each picture show?

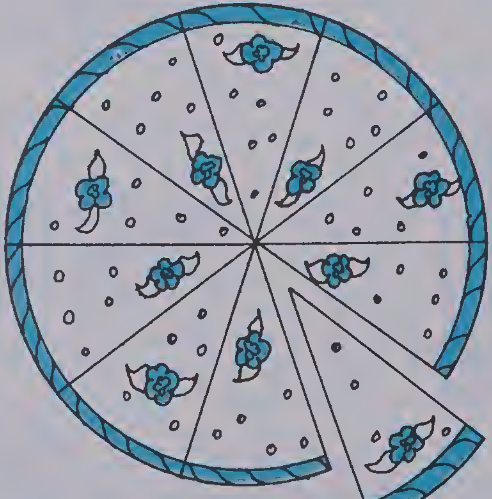
1.



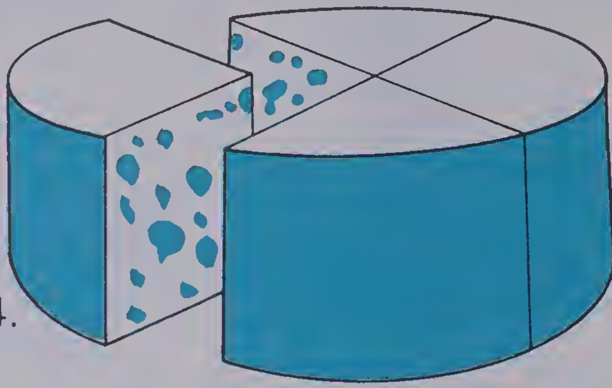
2.



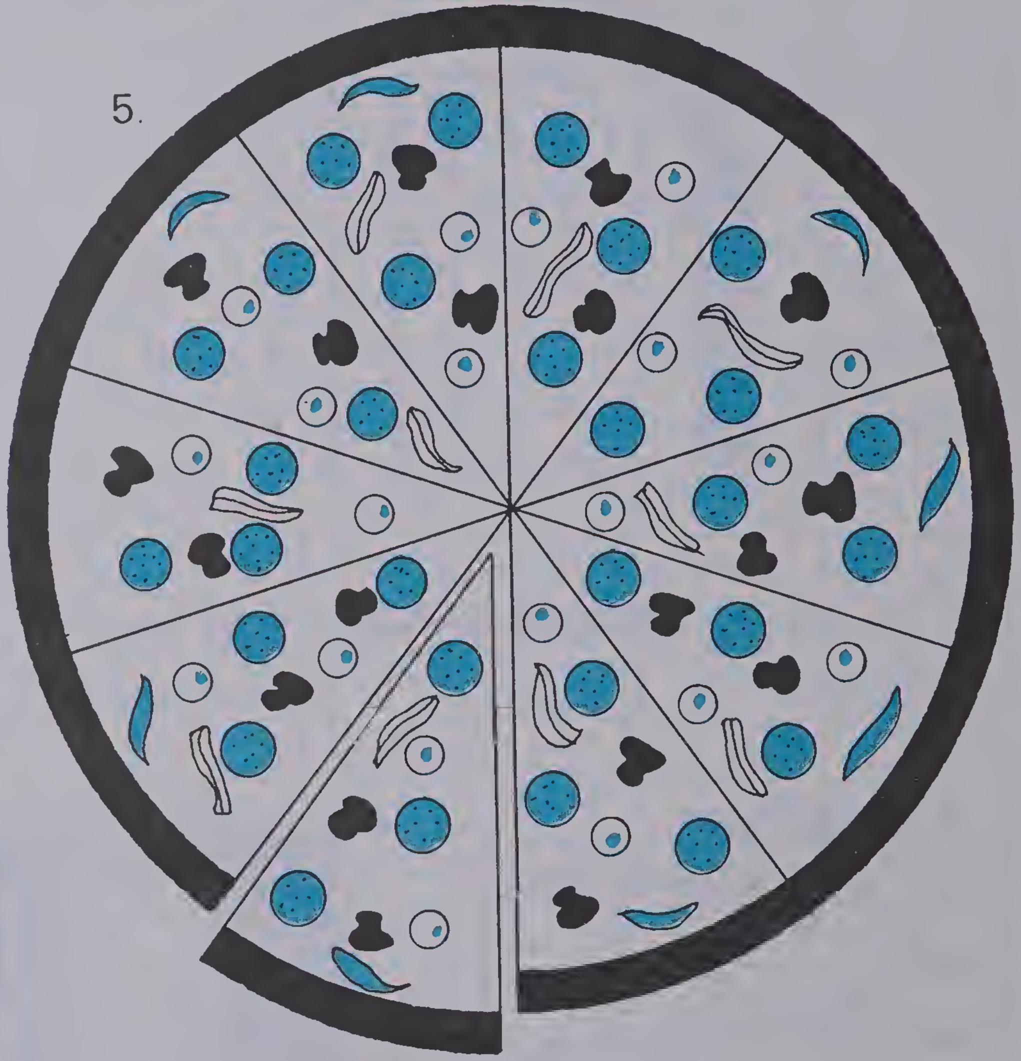
3.



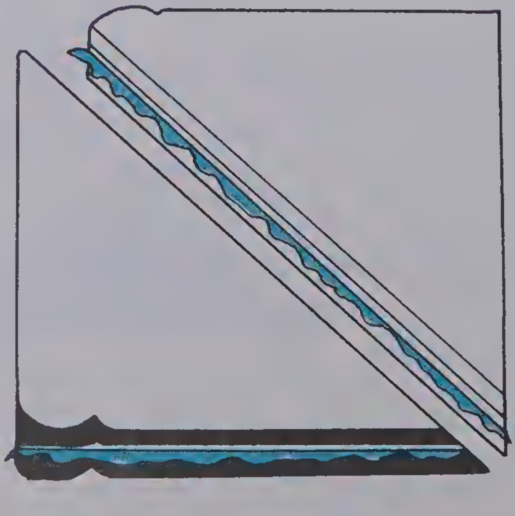
4.



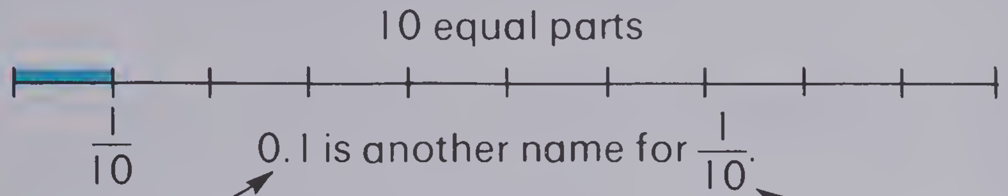
5.



6.



Explore $\frac{1}{10}$, 0.1


10 equal parts
$\frac{1}{10}$

0.1 is another name for $\frac{1}{10}$.

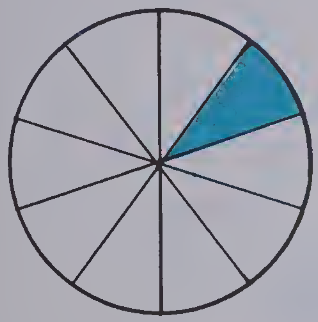
zero decimal one

one-tenth

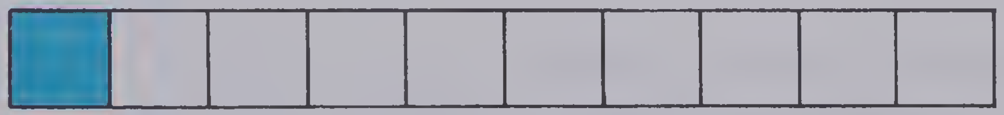
In Action

1. Which pictures show 0.1?

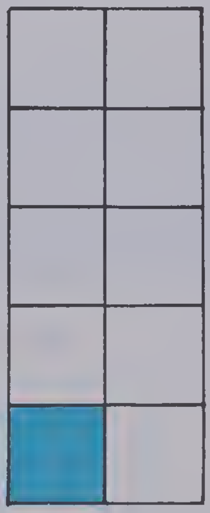
a)



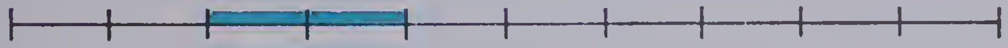
e)



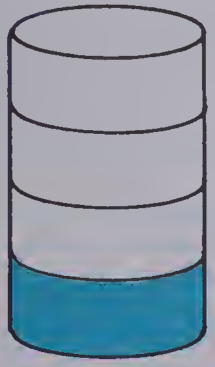
f)



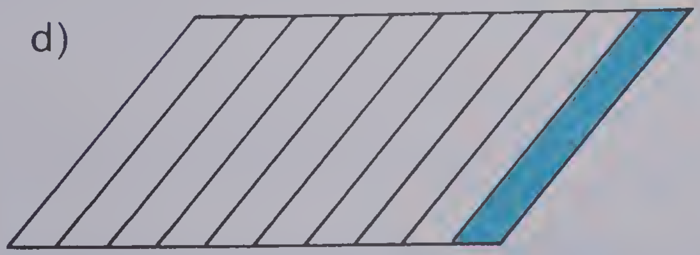
b)



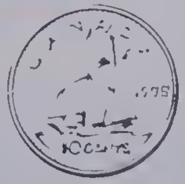
c)



d)



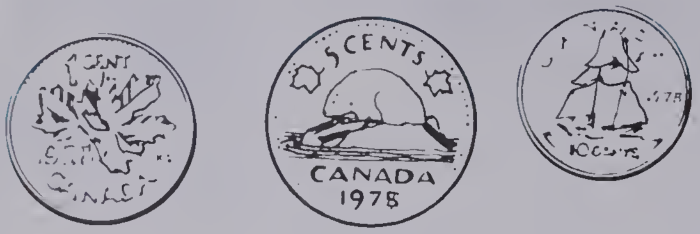
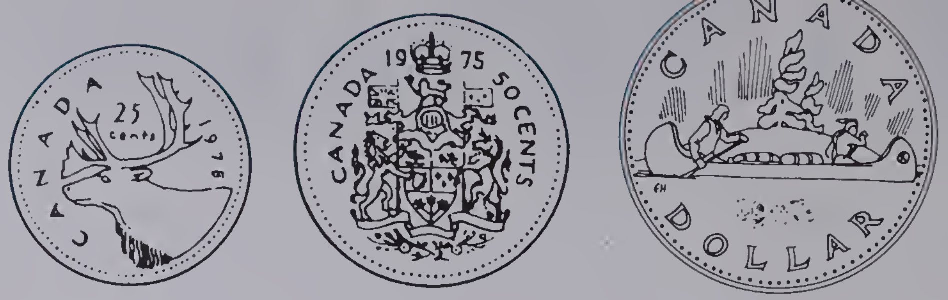
g)



2. Draw a line segment 10 cm long. Show 0.1.

3. Draw a line segment 20 cm long. Show 0.1.

Explore 1¢ to 100¢

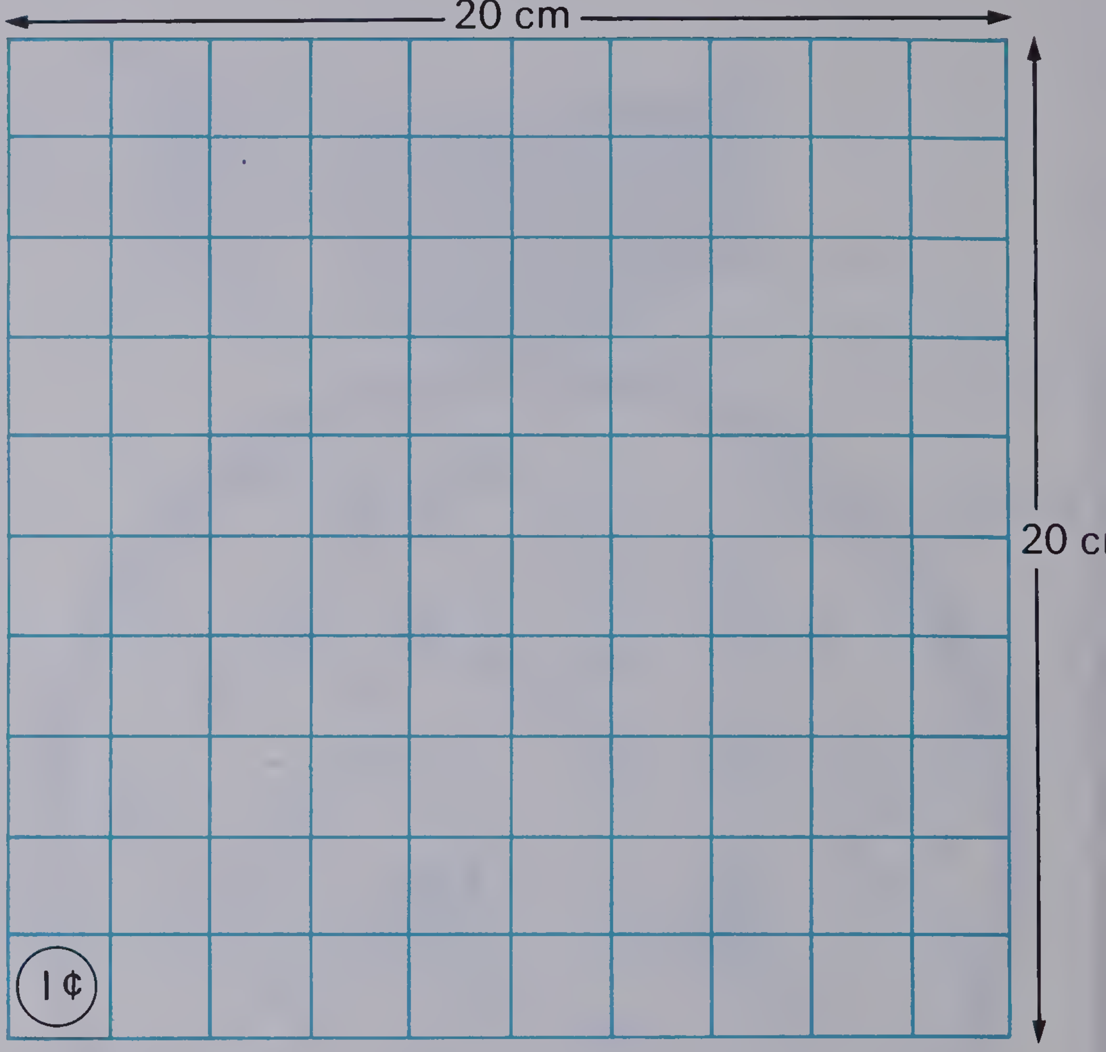



Use paper marked in 2 cm squares.
Draw a penny board.

Put a penny on each space.
How many pennies are there?
How many cents are there?

Show where you would put nickels
for the same amount of money.
How many nickels would there be?

Show where you would put dimes
for the same amount of money.
How many dimes would there be?



100 cents = 1 dollar
100¢ = $1.00

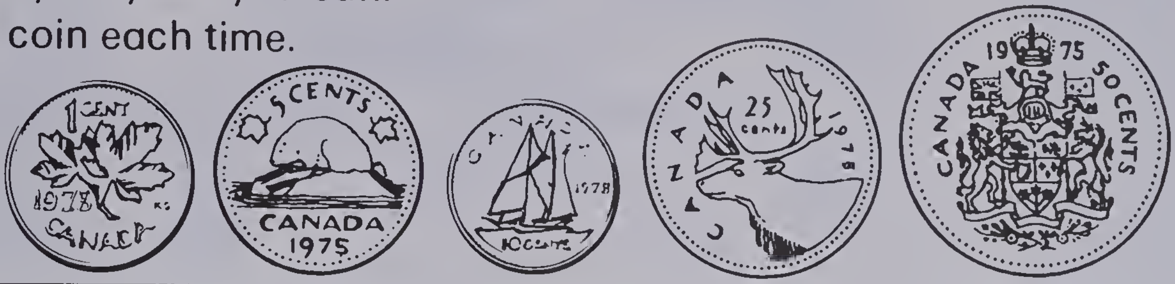
? dimes ? nickels ? pennies

Make 1 dollar.
Your penny board will help you.

a) 6 dimes, ? nickels
b) ? dimes, 4 nickels
c) 5 dimes, ? nickels
d) ? dimes, 14 nickels
e) 9 dimes, ? nickels
f) ? dimes, 18 nickels

Coins, 1 Dollar

Show $1.00 in as many ways as you can.
Use only one kind of coin each time.



1 CENT
1978
CANADA
5 CENTS
CANADA
1975
CANADA
1978
10 CENTS
CANADA
25 cents
1978
1975
CANADA
50 CENTS

Coin	one-cent piece	five-cent piece	ten-cent piece	twenty-five-cent piece	fifty-cent piece
Other Names	penny copper	nickel	dime	quarter	half dollar

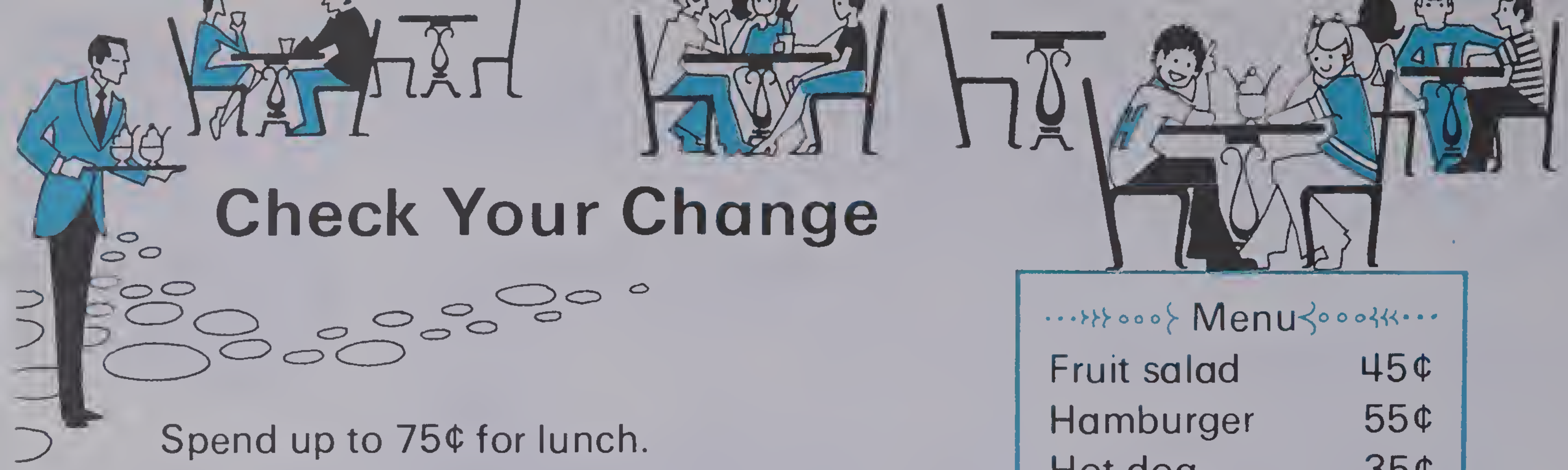
In Action

1. Complete the chart in your notebook.
How many of each kind of coin do you need?

Amount	Number of Nickels	Number of Dimes	Number of Quarters
50¢	10	5	2
10¢			
25¢			
75¢			
$1.00			

2. Complete the chart in your notebook.
Make each amount only once.
Use different coins.

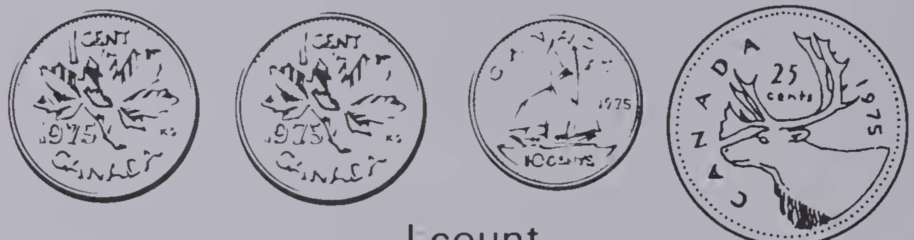
Amount	Number of Nickels	Number of Dimes	Number of Quarters
40¢	1	1	1
90¢			
60¢			
80¢			
75¢			



Check Your Change

Spend up to 75¢ for lunch.
Total your bill.
Show your change from $1.00.

Menu	
Fruit salad	45¢
Hamburger	55¢
Hot dog	35¢
Muffin	12¢
Apple	8¢
Milk	18¢

I give the cashier	My bill	My change	Amount of change
$1.00	63¢	 I count 64, 65, 75, 1 dollar	37¢

In Action

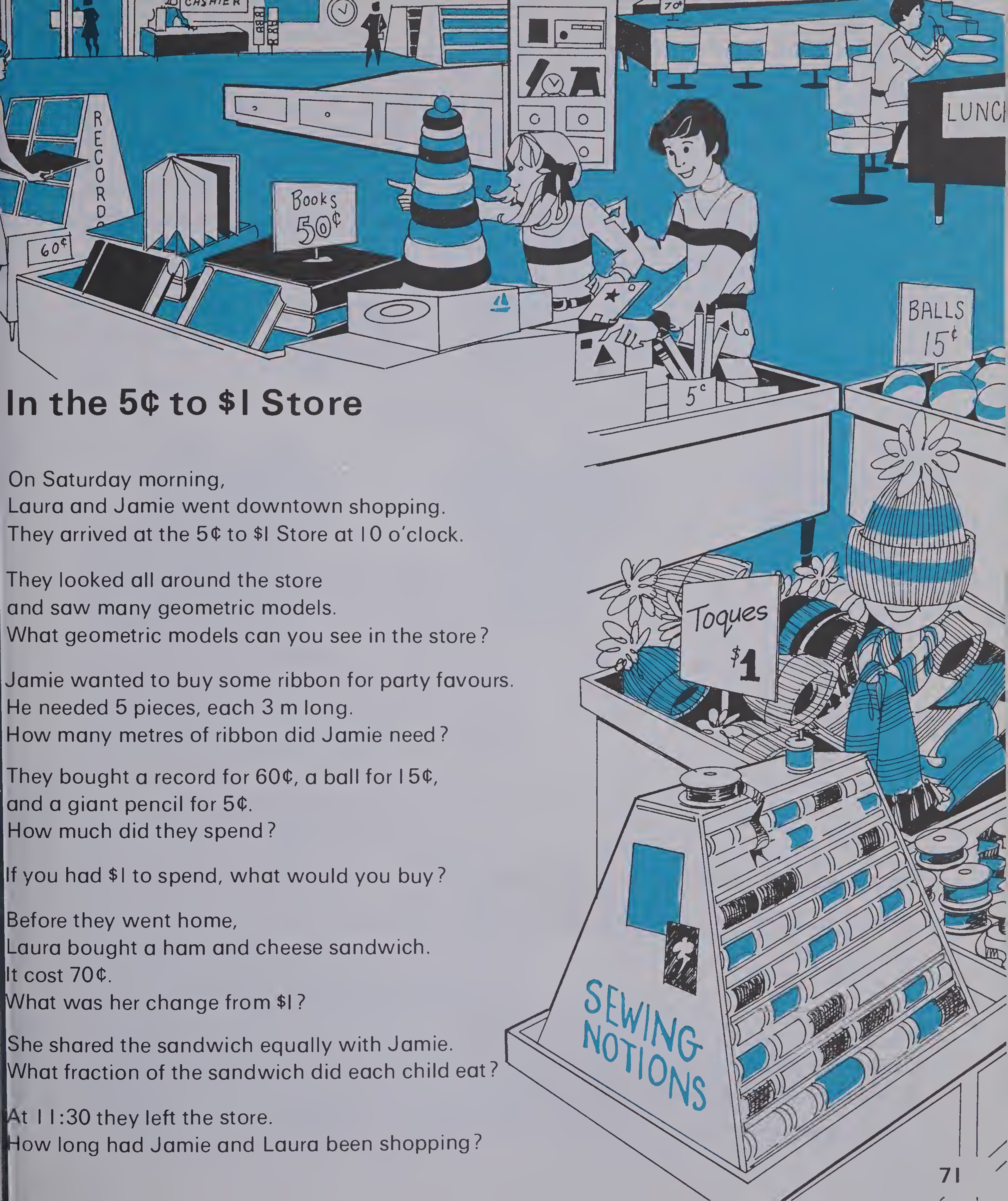
1. Nick has 7 dimes and 4 nickels.
   How much money does he have?

2. Margo has a fifty-cent piece and a quarter.
   Lilly has 7 dimes.
   Which girl has more money?
   How much more money does she have?

3. Kirk emptied his piggy bank.
   He had 2 dimes, 3 nickels, and 6 piles of 10 pennies.
   How much money did he have?

4. Ivy bought a model ship kit for 72¢.
   She gave the storekeeper $1.00.
   How much change did she receive?

72
SHIP KIT
72¢



In the 5¢ to $1 Store

On Saturday morning,
Laura and Jamie went downtown shopping.
They arrived at the 5¢ to $1 Store at 10 o'clock.

They looked all around the store
and saw many geometric models.
What geometric models can you see in the store?

Jamie wanted to buy some ribbon for party favours.
He needed 5 pieces, each 3 m long.
How many metres of ribbon did Jamie need?

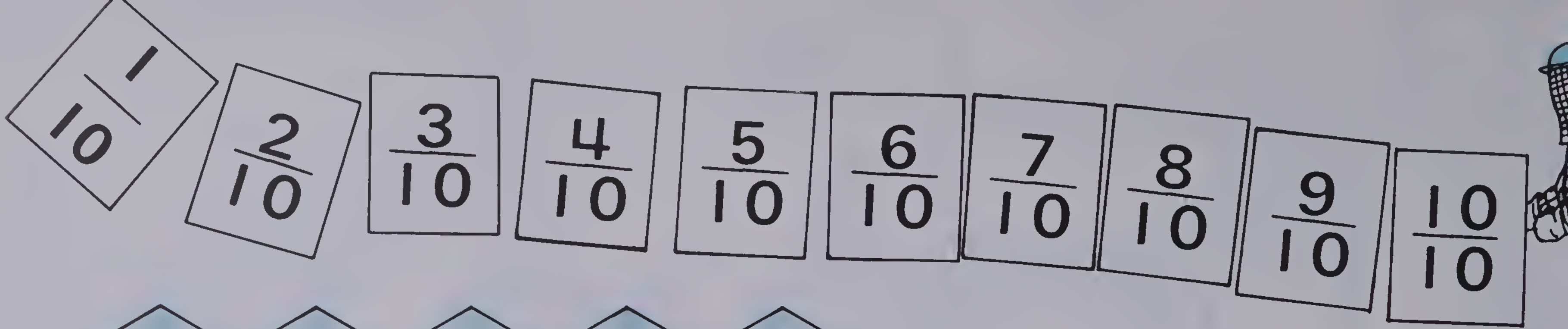
They bought a record for 60¢, a ball for 15¢,
and a giant pencil for 5¢.
How much did they spend?

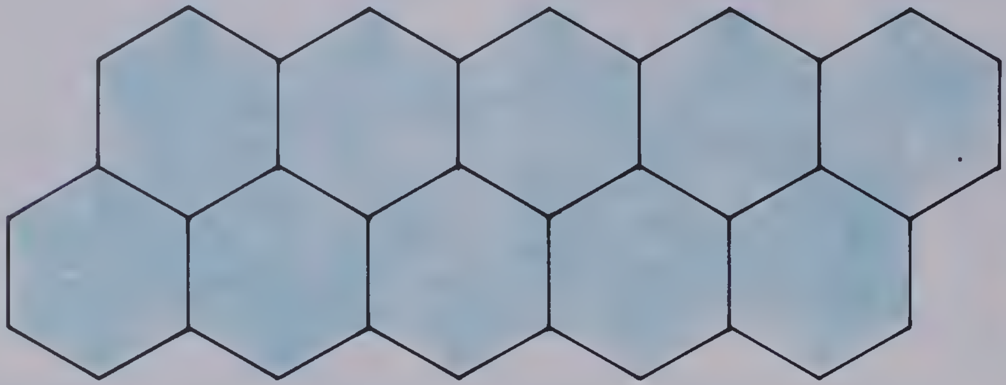
If you had $1 to spend, what would you buy?

Before they went home,
Laura bought a ham and cheese sandwich.
It cost 70¢.
What was her change from $1?

She shared the sandwich equally with Jamie.
What fraction of the sandwich did each child eat?

At 11:30 they left the store.
How long had Jamie and Laura been shopping?

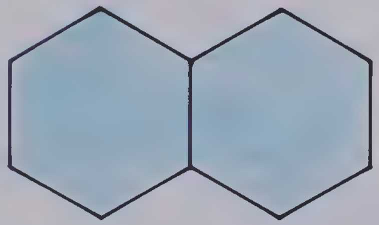

$\frac{1}{10}$
$\frac{2}{10}$
$\frac{3}{10}$
$\frac{4}{10}$
$\frac{5}{10}$
$\frac{6}{10}$
$\frac{7}{10}$
$\frac{8}{10}$
$\frac{9}{10}$
$\frac{10}{10}$

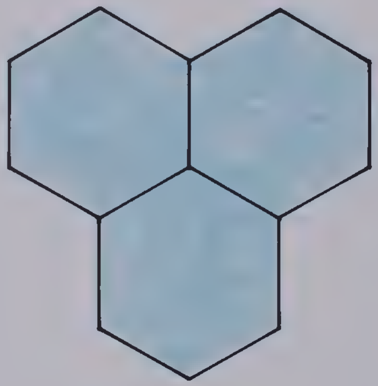


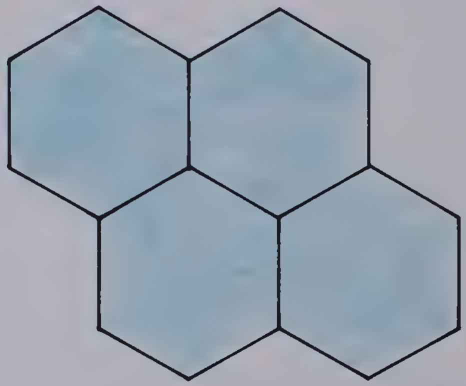
This honeycomb has 10 equal parts.

Each part is $\frac{1}{10}$ of the honeycomb.

What fraction of the honeycomb is each of these parts?





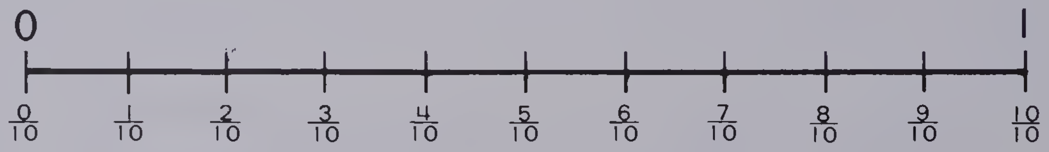


Draw pictures to show

$\frac{6}{10}$ of the honeycomb,

$\frac{7}{10}$ of the honeycomb,

$\frac{9}{10}$ of the honeycomb.


0
1
$\frac{0}{10}$
$\frac{1}{10}$
$\frac{2}{10}$
$\frac{3}{10}$
$\frac{4}{10}$
$\frac{5}{10}$
$\frac{6}{10}$
$\frac{7}{10}$
$\frac{8}{10}$
$\frac{9}{10}$
$\frac{10}{10}$

The line segment is divided into 10 equal parts.

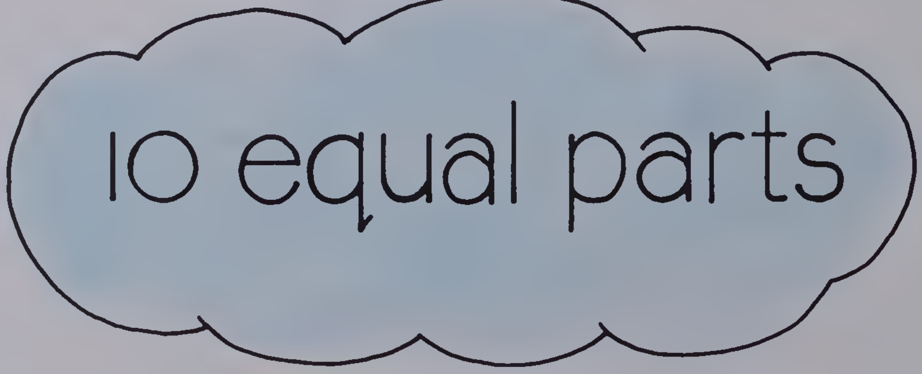
1 part is $\frac{1}{10}$, 2 parts are $\frac{2}{10}$, 3 parts are $\frac{3}{10}$, and so on.

Use a ruler.

Draw a line segment 20 cm long.

Divide it into 10 equal parts.

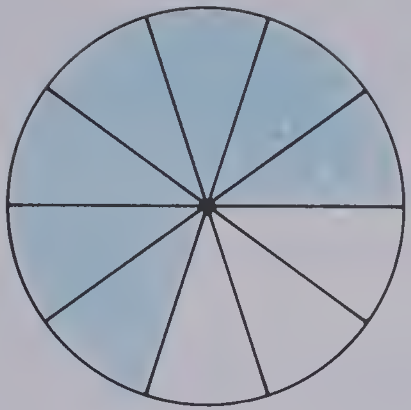
Number the parts from $\frac{1}{10}$ to $\frac{10}{10}$.


10 equal parts

In Action

1. The picture shows $\frac{7}{10}$.

How many equal parts are there?
How many parts are coloured?



2. Use the shapes to show the fractions.

a) square, $\frac{4}{10}$

b) rectangle, $\frac{6}{10}$

c) parallelogram, $\frac{3}{10}$

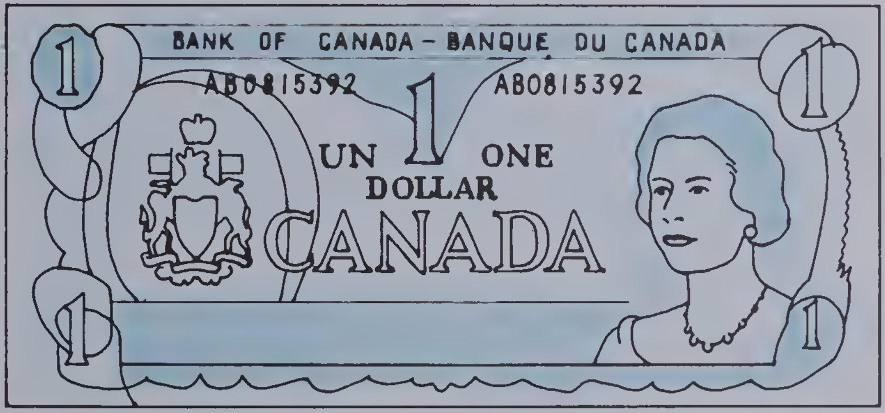
d) circle, $\frac{5}{10}$

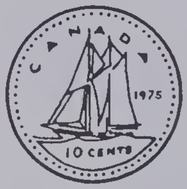
e) line segment, $\frac{8}{10}$

f) rectangle, $\frac{1}{10}$

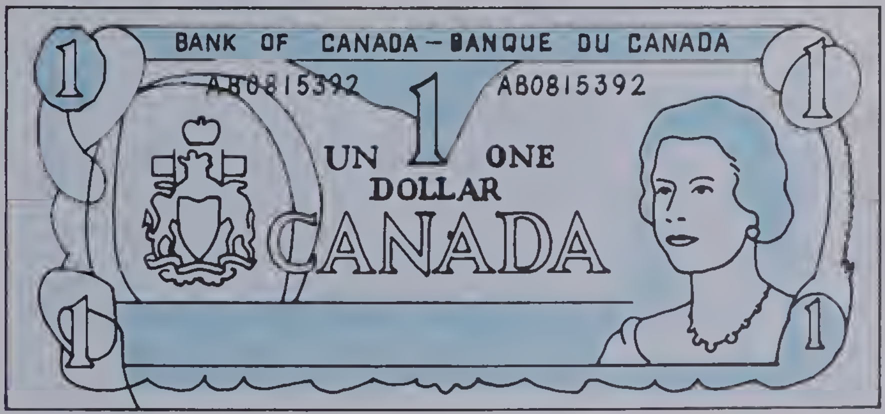
3. The first object in each question shows 1.
How many tenths does the second object show?

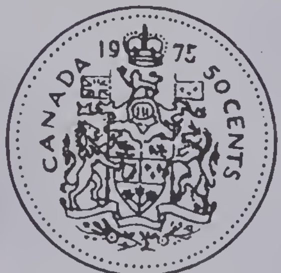
a)


BANK OF CANADA – BANQUE DU CANADA
AB0815392
AB0815392
1
UN ONE
DOLLAR
CANADA

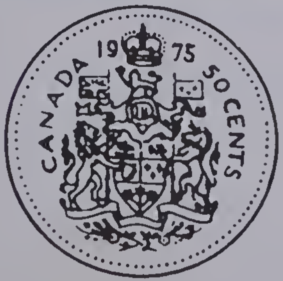

CANADA
1975
10 CENTS

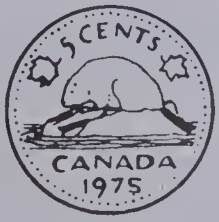
b)


BANK OF CANADA – BANQUE DU CANADA
AB0815392
AB0815392
1
UN ONE
DOLLAR
CANADA

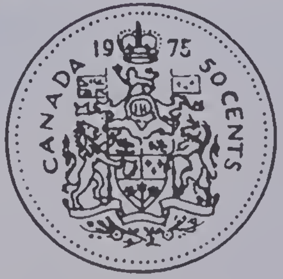

CANADA
1975
50 CENTS

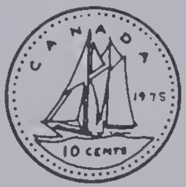
c)

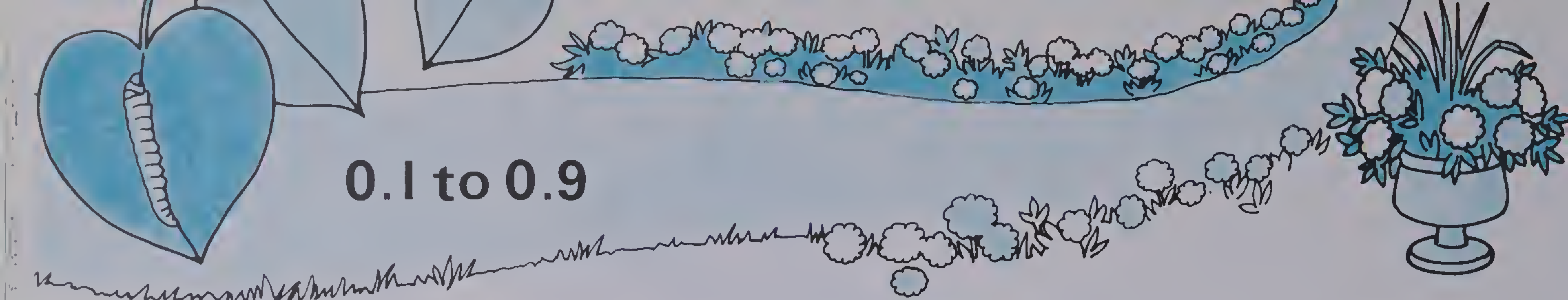

CANADA
1975
50 CENTS


5 CENTS
CANADA
1975

d)

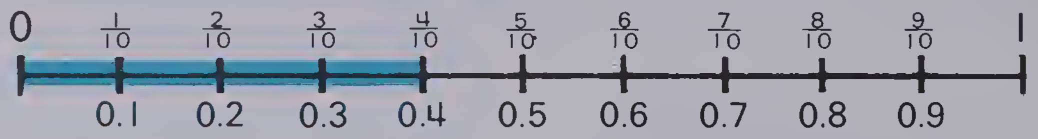

CANADA
1975
50 CENTS


CANADA
1975
10 CENTS



0.1 to 0.9

0.1 ("zero decimal one") is the decimal for $\frac{1}{10}$.


0
$\frac{1}{10}$
$\frac{2}{10}$
$\frac{3}{10}$
$\frac{4}{10}$
$\frac{5}{10}$
$\frac{6}{10}$
$\frac{7}{10}$
$\frac{8}{10}$
$\frac{9}{10}$
1
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

The picture shows $\frac{4}{10}$, or 0.4, of the line segment.

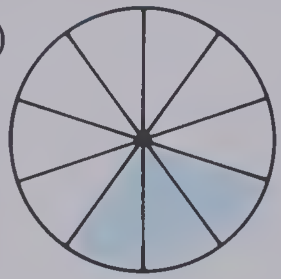
Show each of the fractions $\frac{1}{10}$ to $\frac{9}{10}$ on a number line.

Write the decimals.

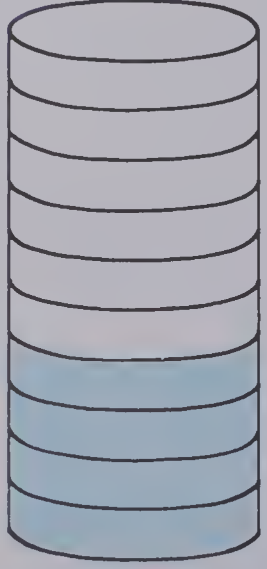
In Action

1. Write the decimals.

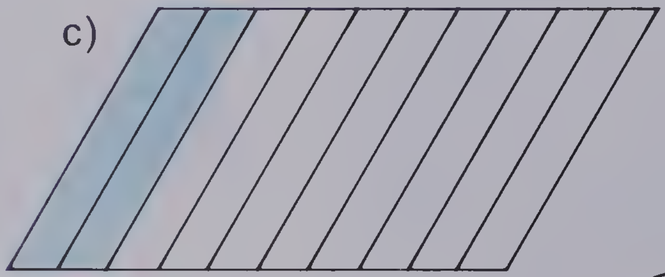
a)



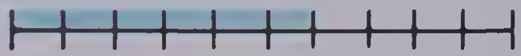
b)



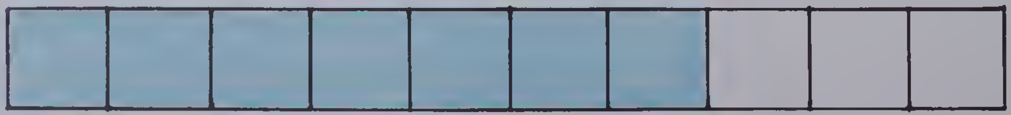
c)



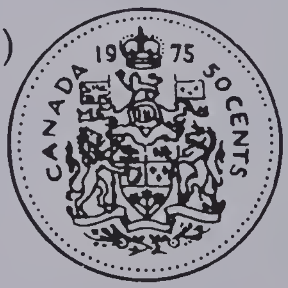
d)



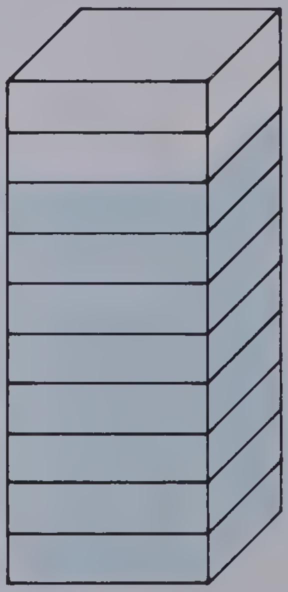
e)



f)


CANADA
1975
50 CENTS

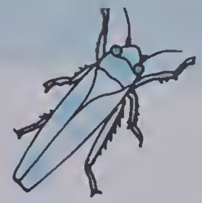
g)



2. List the tenths that are greater than $\frac{1}{2}$.

Write the decimals.

Retrace Your Steps



1. Use the decagon on your *mathways* ruler.
   Show the decimals 0.3, 0.6, 0.9.

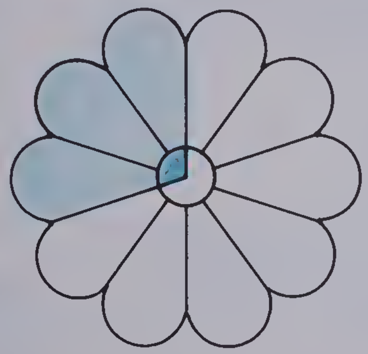
2. Complete the chart in your notebook.

Fraction			$\frac{4}{10}$	$\frac{1}{10}$		$\frac{8}{10}$
Decimal	0.2	0.7			0.5	

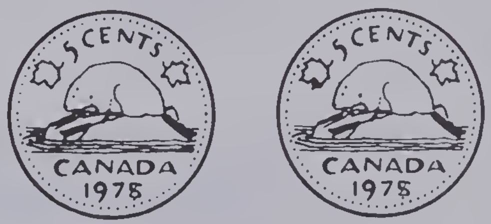
3. Use coins to show the decimals 0.1, 0.2, 0.5.

4. Write the fractions and decimals.

a)

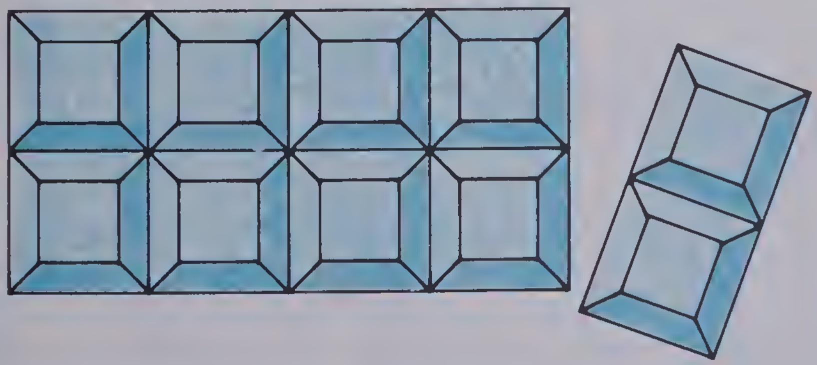


d)

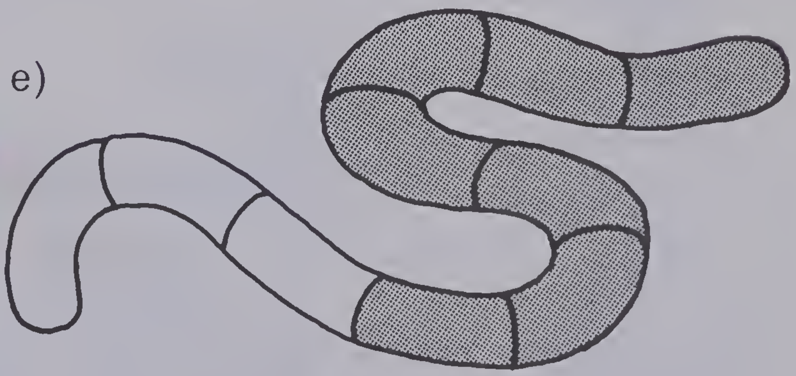


CENTS
CANADA
1975
CENTS
CANADA
1975

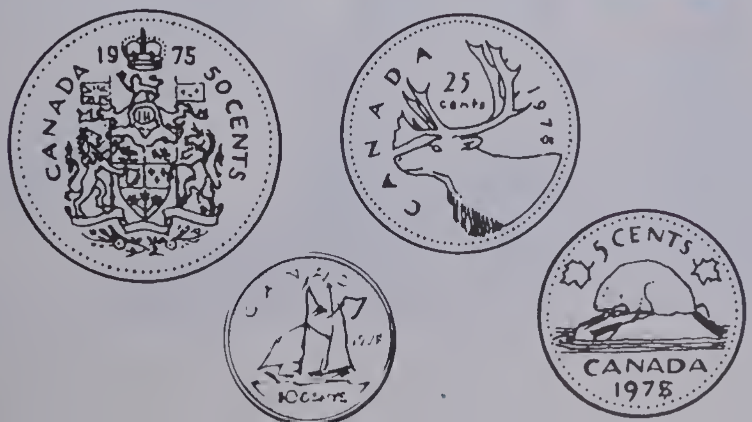
b)



e)

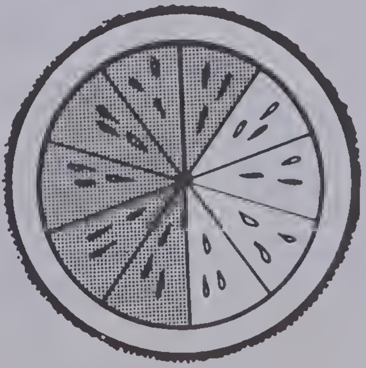


c)



1975
CANADA
50 CENTS
CANADA
25 cents
1975
10 CENTS
CENTS
CANADA
1975

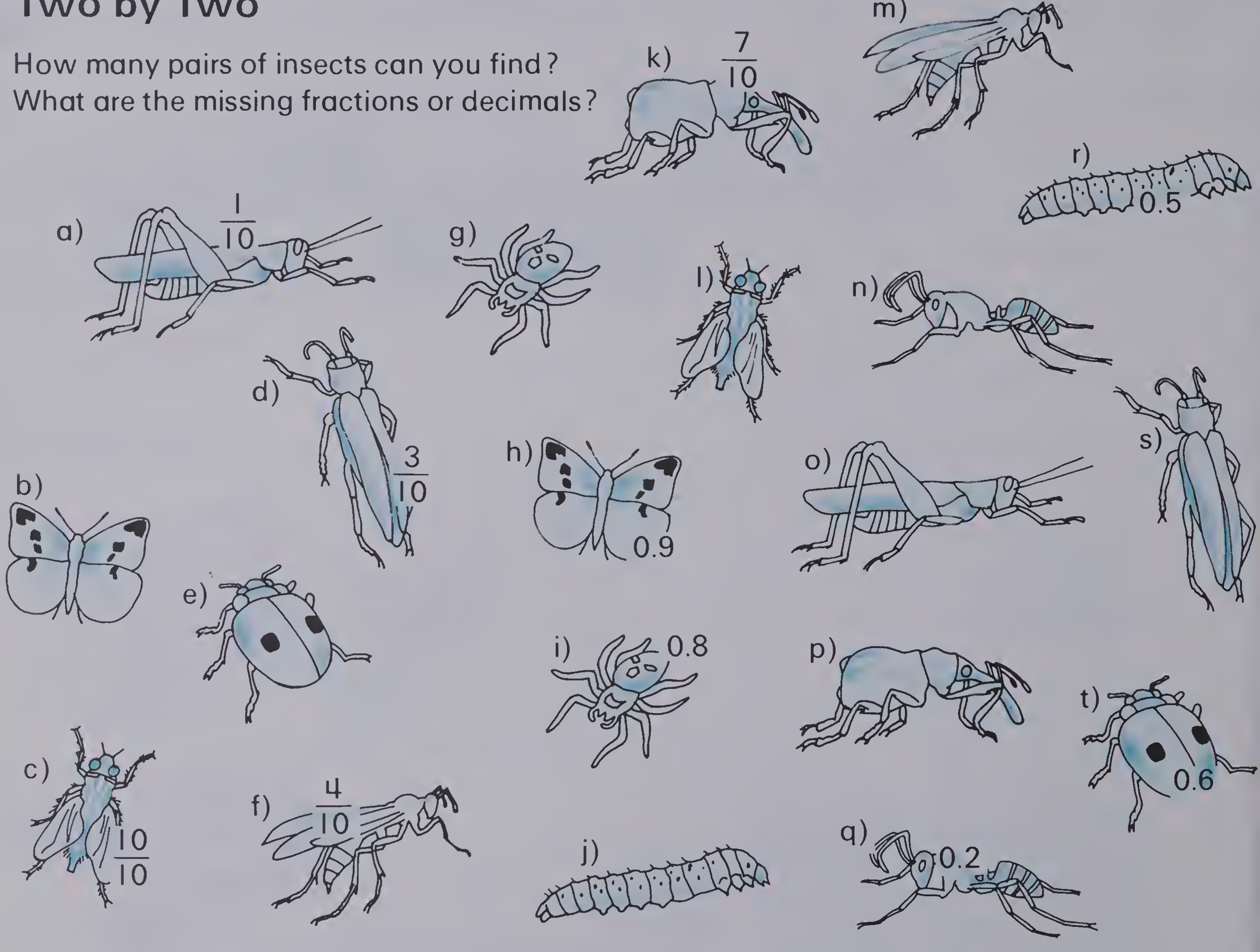
f)



Byway

Two by Two

How many pairs of insects can you find?
What are the missing fractions or decimals?


k) $\frac{7}{10}$
m)
r) 0.5
a) $\frac{1}{10}$
g)
l)
n)
d) $\frac{3}{10}$
h) 0.9
o)
s)
b)
e)
i) 0.8
p)
t) 0.6
c) $\frac{10}{10}$
f) $\frac{4}{10}$
j)
q) 0.2

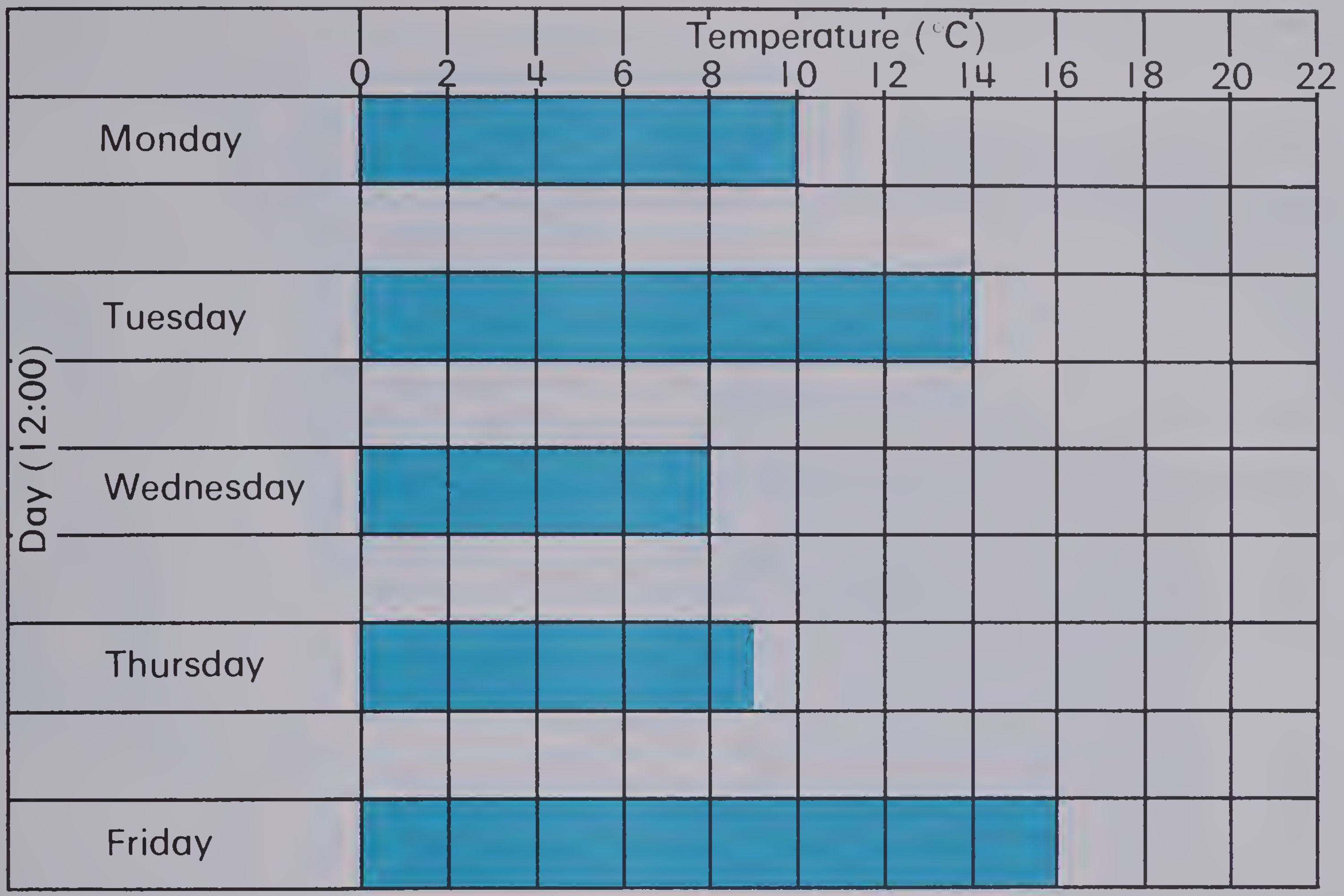
Make a chart in your notebook.

Insects	Fraction	Decimal
a, o	$\frac{1}{10}$	0.1

Temperature Report

Make a wall chart showing the temperatures for a week.

Use paper marked into I cm squares.

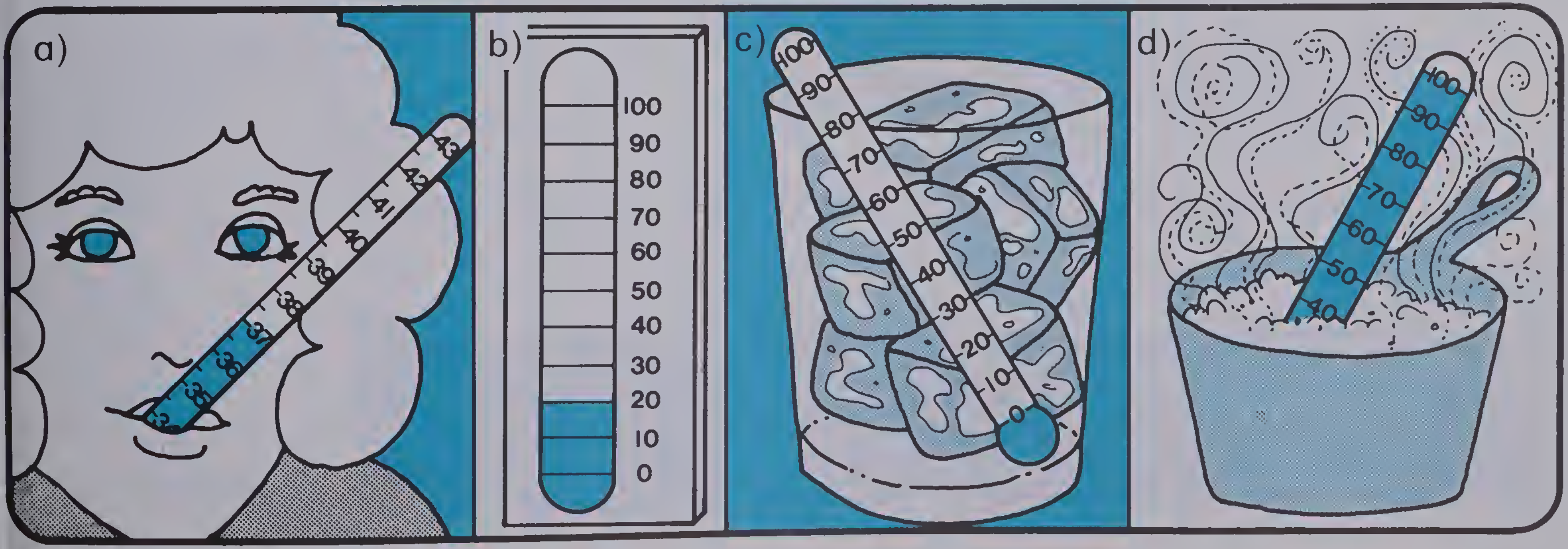


Colour in the bars to show the temperature for each day.

What day had the highest temperature? What day had the lowest temperature?

What is the difference between these temperatures?

Read the temperatures.


a)
43
42
41
40
39
38
37
36
35
b)
100
90
80
70
60
50
40
30
20
10
0
c)
100
90
80
70
60
50
40
30
20
10
0
d)
100
90
80
70
60
50
40

Unit I, Check I

List your answers.
Check your own work.
The answers are in the rectangle at the bottom of the page.

1. Add.

a) (9,2) c) (13,6) e) (7,6) g) (8,11) i) (11,4) k) (6,11)
b) (1,19) d) (8,4) f) (18,2) h) (5,9) j) (10,8) l) (4,12)

Did you do these correctly and quickly?
Knowing these facts is important.
If you are not happy with your work, practise some more.
Question 1, page 79, is for practising addition.

2. Subtract.

a) (20,8) c) (12,0) e) (18,8) g) (19,5) i) (16,5) k) (14,6)
b) (11,8) d) (19,17) f) (20,13) h) (17,11) j) (13,9) l) (15,1)

Are you happy with your work?
Question 2, page 79, is for practising subtraction.

3. Pick a number from each chart.
Write a number pair and subtract.

20	▨	18	▨	16	▨	14	▨	12	▨	10
▨	19	▨	17	▨	15	▨	13	▨	11	▨

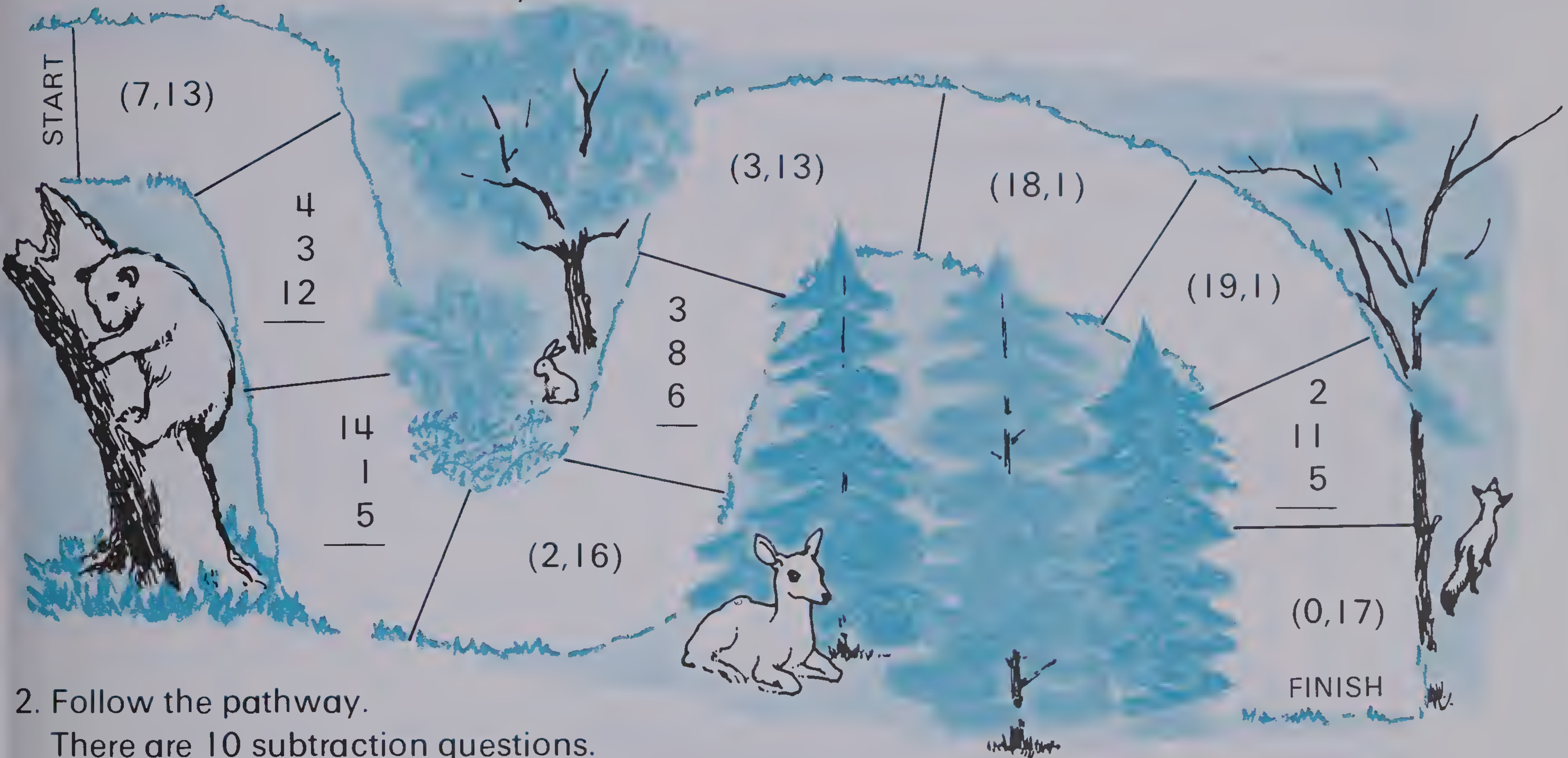
4	3	8
9	5	1
2	7	6

Explore the numbers in the charts.

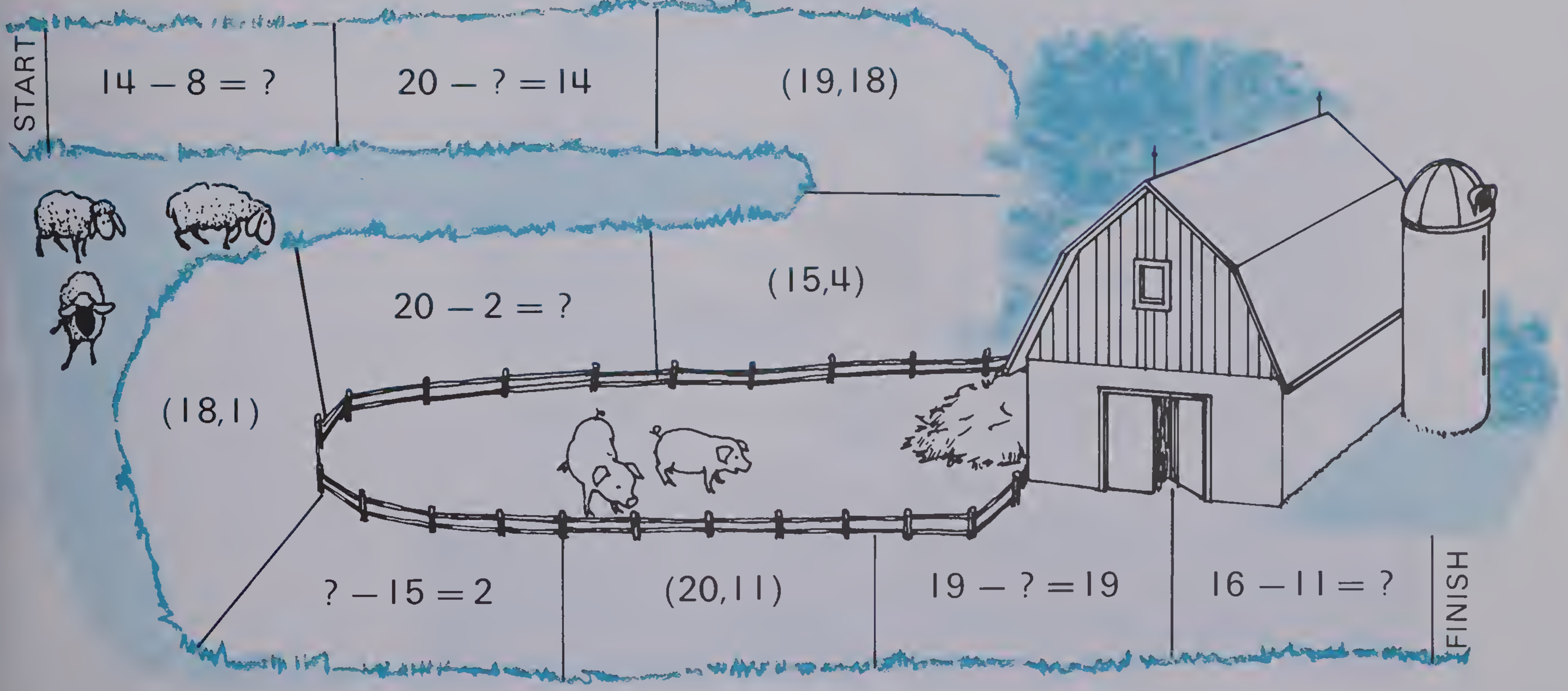
1. a) 11 b) 20 c) 19 d) 12
e) 13 f) 20 g) 19 h) 14
i) 15 j) 18 k) 17 l) 16
2. a) 12 b) 3 c) 12 d) 2
e) 10 f) 7 g) 14 h) 6
i) 11 j) 4 k) 8 l) 14

Practice I

1. Follow the pathway.
   There are 10 addition questions.
   Write the answers in a row in your notebook.


START
(7,13)
4
3
12
14
1
5
(2,16)
3
8
6
(3,13)
(18,1)
(19,1)
2
11
5
(0,17)
FINISH

2. Follow the pathway.
   There are 10 subtraction questions.
   Write the answers in a row in your notebook.


START
14 − 8 = ?
20 − ? = 14
(19,18)
(15,4)
20 − 2 = ?
(18,1)
? − 15 = 2
(20,11)
19 − ? = 19
16 − 11 = ?
FINISH

Unit I, Check 2

List your answers.
Check your own work.
The answers are at the bottom of the page.
See page 81 for more practice.

1. Multiply.

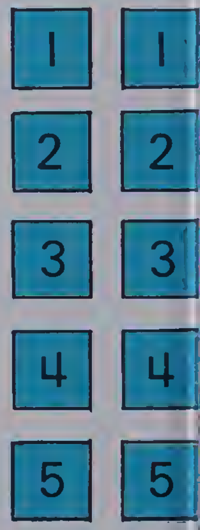
a) (1,1) c) (4,4) e) (2,5) g) (3,3) i) (5,5) k) (3,5) m) (5,4)
b) (2,3) d) (1,2) f) (3,4) h) (4,2) j) (1,4) l) (4,1) n) (2,2)

Are you happy with your work?
Knowing these facts is important.

2. Divide.

a) (20,5) c) (4,2) e) (5,1) g) (3,3) i) (15,5) k) (8,4) m) (12,3)
b) (4,4) d) (6,3) f) (5,5) h) (20,4) j) (3,1) l) (2,2) n) (16,4)

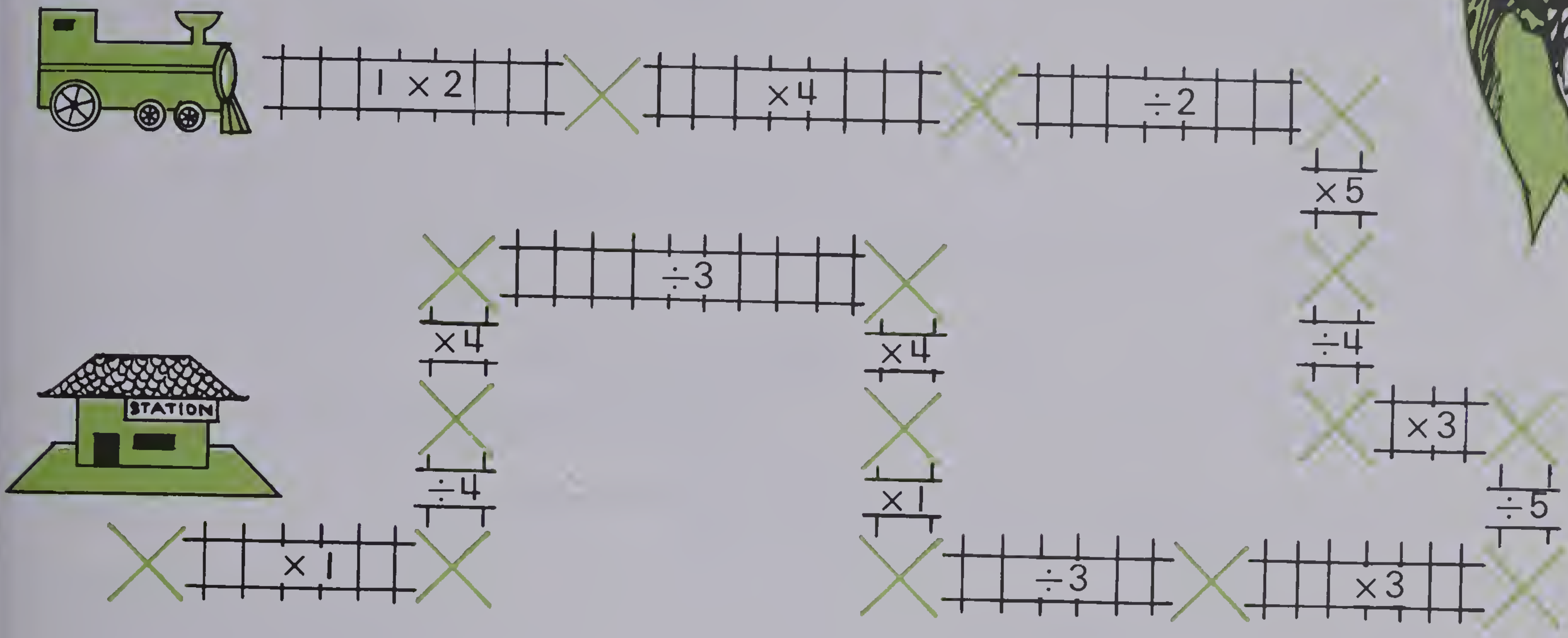
3. Work with 3 classmates.
Make a set of cards like these.
Shuffle the cards and place them in 2 piles so you cannot see the numerals.
Turn over one card from each pile.
If you multiply, what is the answer?
Say the division sentence.
Take turns turning cards over.
When you have used all the cards, shuffle them and play again.



1. a) 1 c) 16 e) 10 g) 9 i) 25 k) 15 m) 20
b) 6 d) 2 f) 12 h) 8 j) 4 l) 4 n) 4
2. a) 4 c) 2 e) 5 g) 1 i) 3 k) 2 m) 4
b) 1 d) 2 f) 1 h) 5 j) 3 l) 1 n) 4

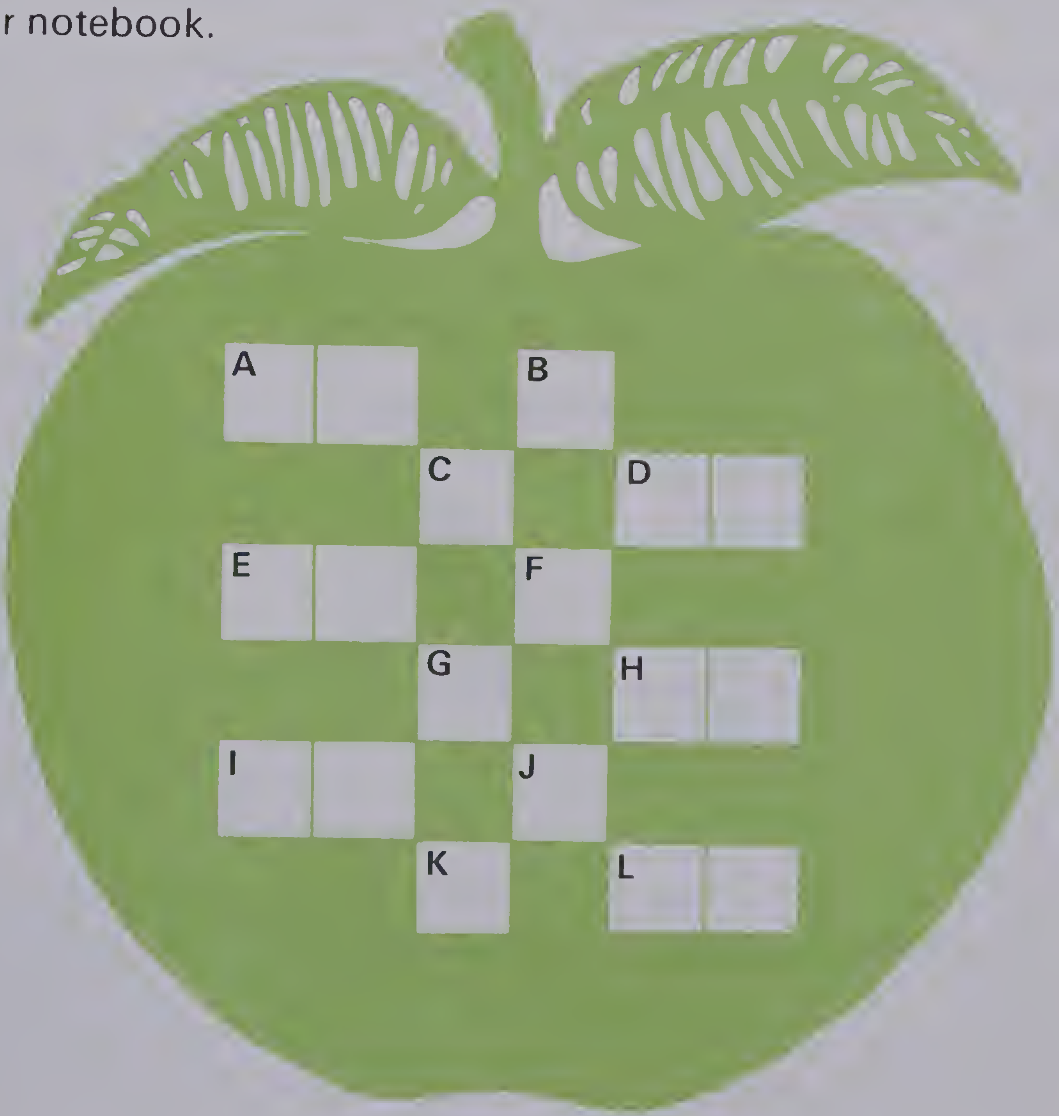
Practice 2

1. Follow the track to the station.
   When you come to a crossing, write the answer in your notebook.
   Use that answer to find the next one.


1 × 2
×4
÷2
×5
÷4
×3
÷5
×3
÷3
×1
×4
÷3
×4
÷4
×1
STATION

2. Complete the puzzle in your notebook.

A ? ÷ 2 = 5
B ? × 3 = 3
C 8 ÷ 4 = ?
D ? ÷ 5 = 4
E 5 × 5 = ?
F ? × 1 = 5
G 4 ÷ 2 = ?
H ? ÷ 5 = 2
I ? ÷ 4 = 3
J 25 ÷ ? = 5
K 5 × ? = 20
L ? ÷ 3 = 5


A
B
C
D
E
F
G
H
I
J
K
L

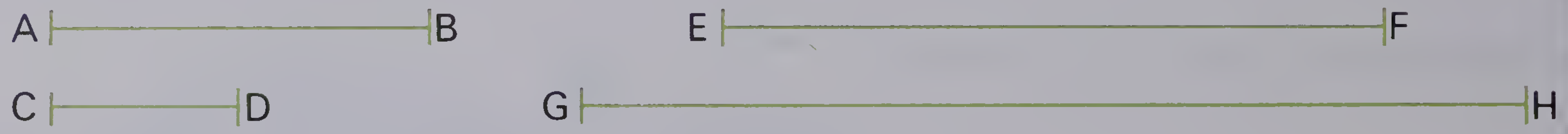
Unit I, Check 3

Think about each question.
Write your answer.
Check your own work.
The answers are at the bottom of the page.
If you need practice, see page 83.

1. a) 53 is a 2-digit number.
What does it mean to you?

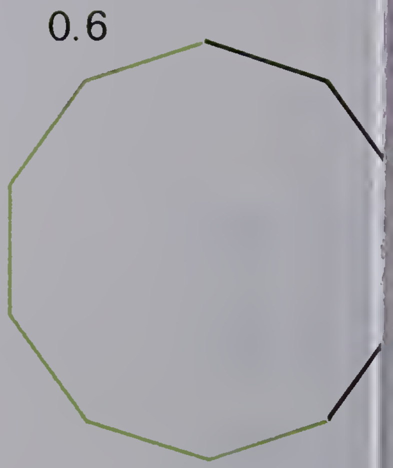
b) Think about 44.
Is one 4 different from the other?

2. a) How many centimetres long do you think each line segment is?
Guess, then measure.
Do one at a time.



b) Draw some line segments.
Think about one at a time.
Guess the length in centimetres, then measure.
You will soon be quite close in guessing.

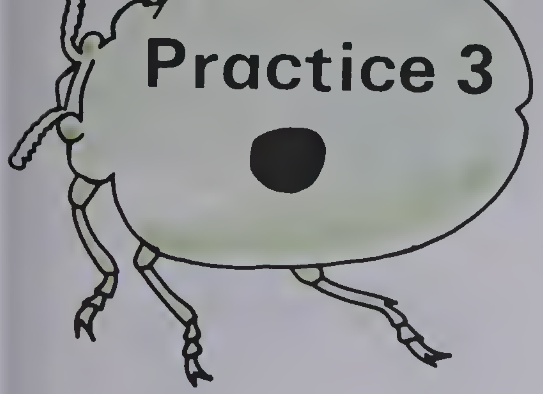
3. Use the decagon on your *mathways* ruler.
Draw a picture for each decimal 0.1 to 0.9.
Write the fractions.



1. a) 5 tens and 3
b) The first 4 tells the number of tens; the second 4 tells the number of ones.

2. AB = 4 cm, CD = 2 cm, EF = 7 cm, GH = 10 cm

3. $\frac{1}{10}, \frac{2}{10}, \frac{3}{10}, \frac{4}{10}, \frac{5}{10}, \frac{6}{10}, \frac{7}{10}, \frac{8}{10}, \frac{9}{10}$



Practice 3

1.

83

Number of tens

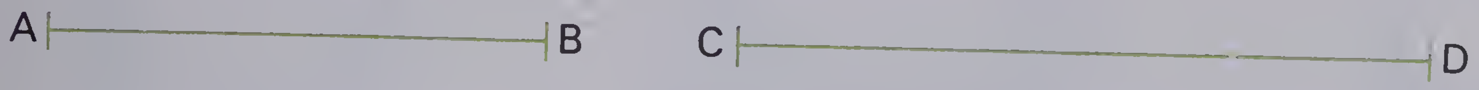
Number of ones

83 means 8 tens and 3

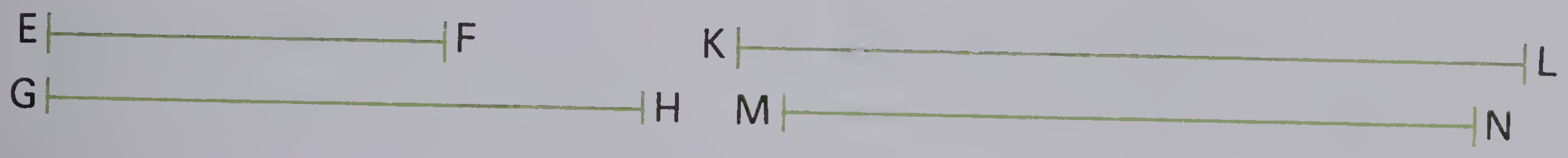
Write the meaning of these numbers.

a) 19 b) 74 c) 30 d) 26 e) 58 f) 92

2. a) Measure these line segments with your ruler.

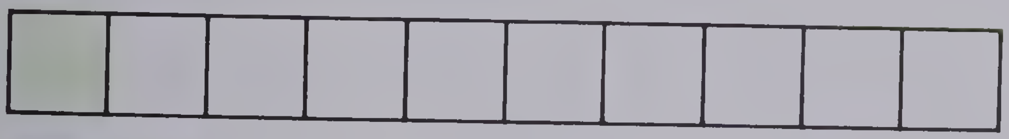


b) How many centimetres long do you think each line segment is?
Guess, then measure.
Do one at a time.

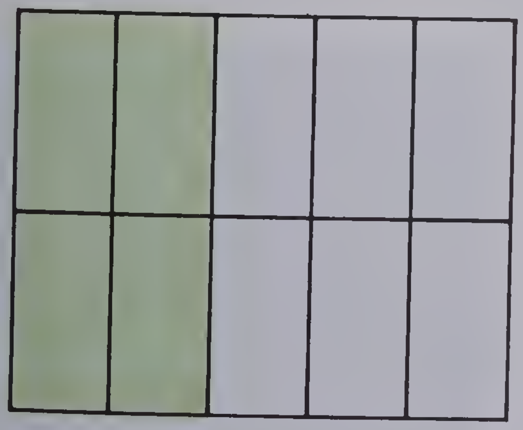


3. Write a fraction and a decimal for each picture.

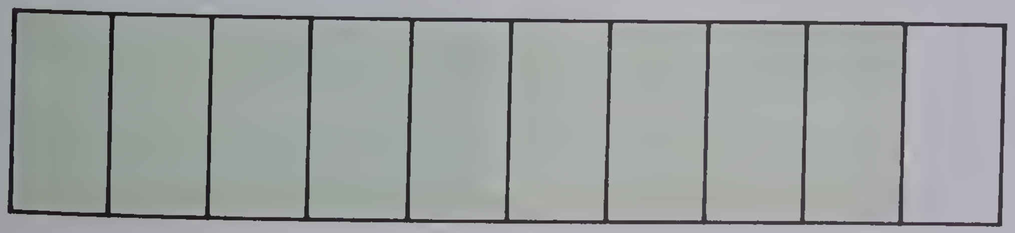
a)



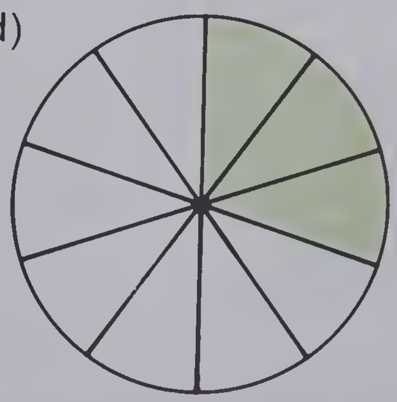
b)



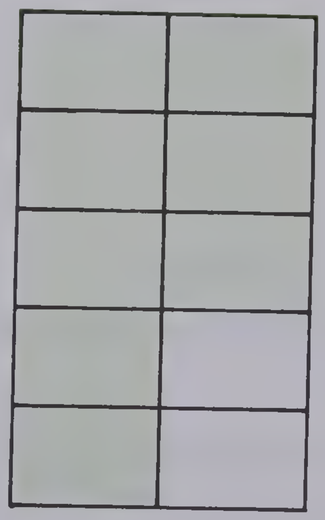
c)



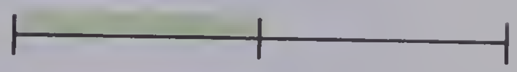
d)

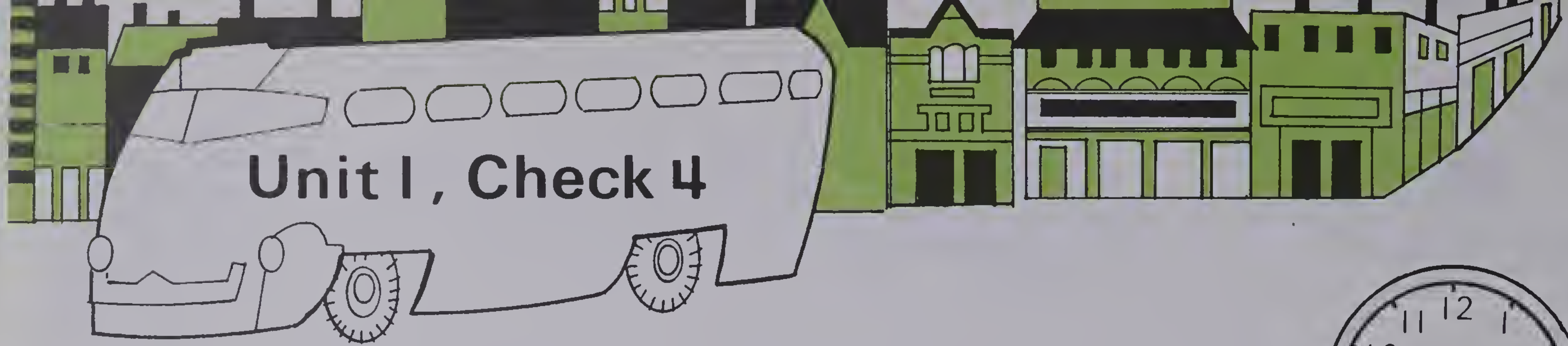


e)



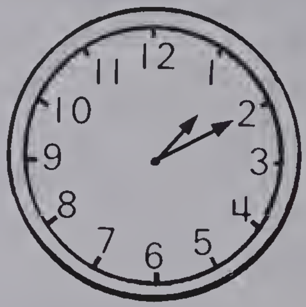
f)





Unit I, Check 4

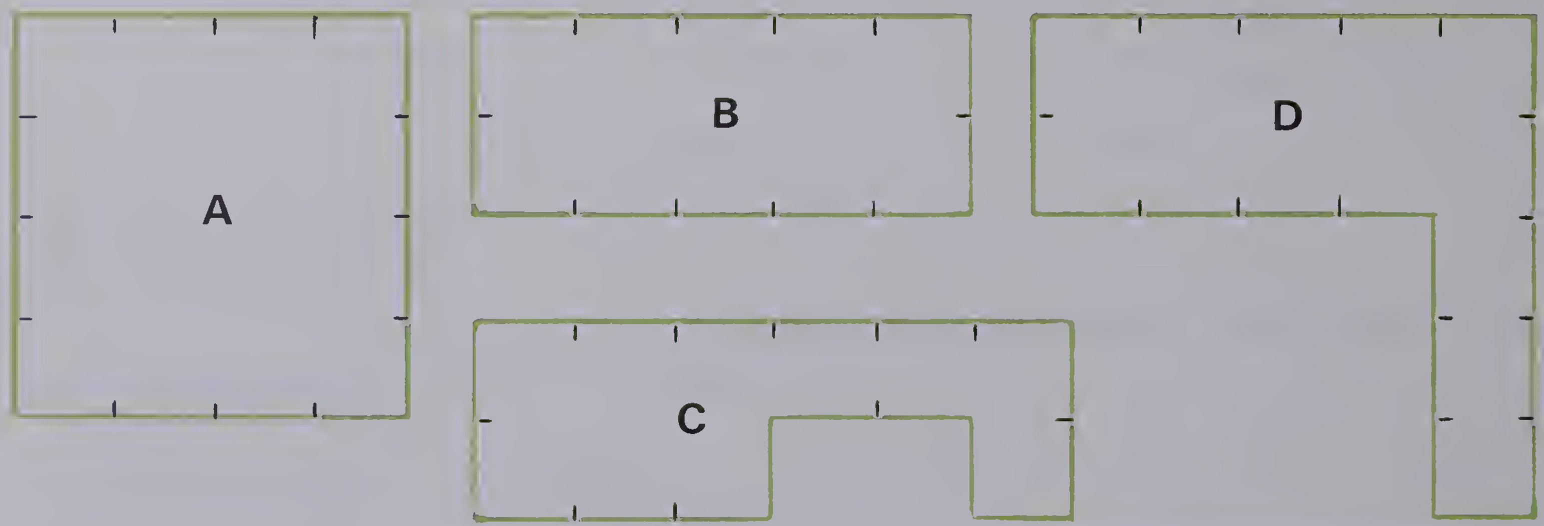
Write your answers. Check your own work.
The answers are in the square at the bottom of the page.
If you need practice, see page 85.



1. a) Use your *mathways* ruler.
   Draw 3 circles.
   Write numerals around the circles to make clock faces.
   Show 3 times on the clock faces.
   Make each time 4 hours different from the others.

   b) What time is it?
   Show 40 minutes later.
   Tell the time.
   Show 25 minutes earlier.
   Tell the time.

2. a) Find the perimeter of each figure in centimetres.
   b) Order the perimeters from greatest to least.



3. a) You spent 35¢.
   What is your change from
   (i) 50¢ (ii) $1.00?

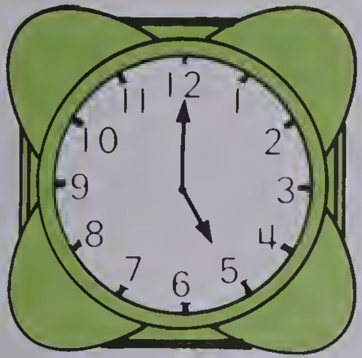
   b) You exchange a dollar bill for coins.
   How many would you get?
   (i) dimes (iii) quarters
   (ii) nickels (iv) fifty-cent pieces
   (v) You ask for 1 fifty-cent piece,
   1 quarter, 1 dime, and 1 nickel.
   What other coins could you get?

1. b) 1:10, 1:50, 12:45
2. a) A—16 cm C—18 cm
   B—14 cm D—20 cm
   b) D, C, A, B
3. a) (i) 15¢ (ii) 65¢
   b) (i) 10 dimes (ii) 20 nickels
   (iii) 4 quarters
   (iv) 2 fifty-cent pieces
   (v) 1 dime, 2 nickels, 1 nickel
   and 5 pennies, or 10 pennies

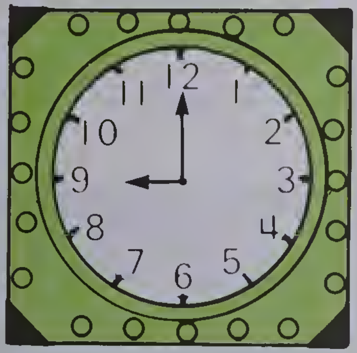
Practice 4

1. a) What time is it?

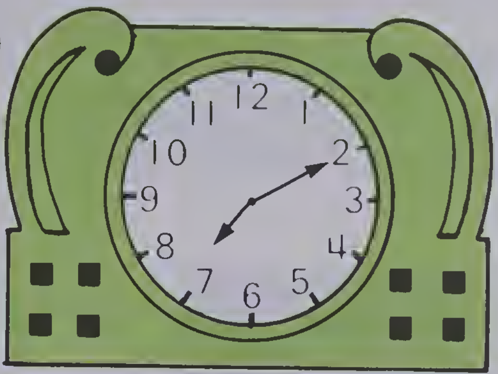
(i)



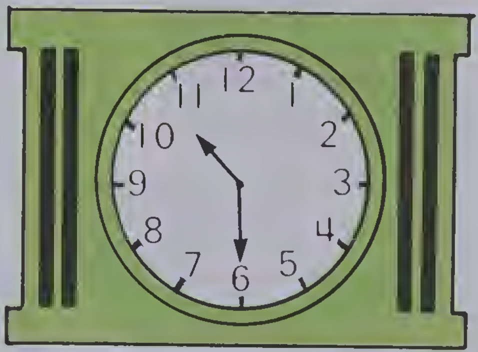
(ii)



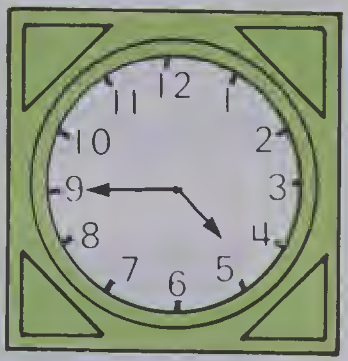
(iii)



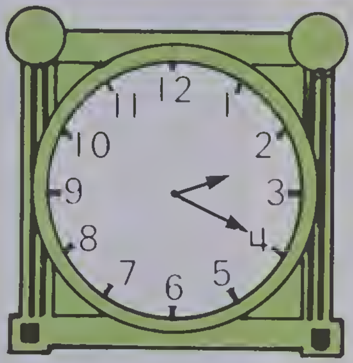
(iv)



(v)



(vi)

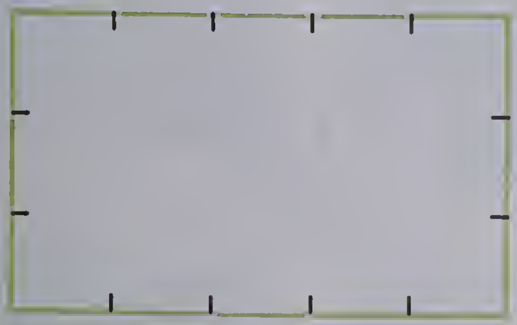


b) Write the times.

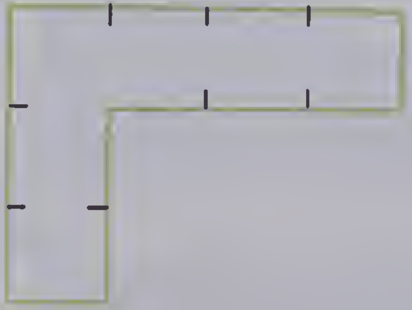
(i) 15 minutes later than 3:20
(ii) 50 minutes later than 1:05
(iii) 20 minutes earlier than 6:00
(iv) 45 minutes earlier than 8:50

2. The figures are marked off in 1 cm units.
What are their perimeters?

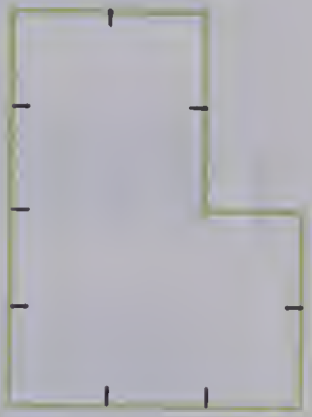
a)



b)



c)



3. a) What coins will you use?

(i) 70¢ : ? fifty-cent pieces, ? dimes
(ii) 55¢ : ? quarters, ? nickels
(iii) 90¢ : ? quarters, ? dimes, ? nickels
(iv) 80¢
(v) $1.00

b) Make change.

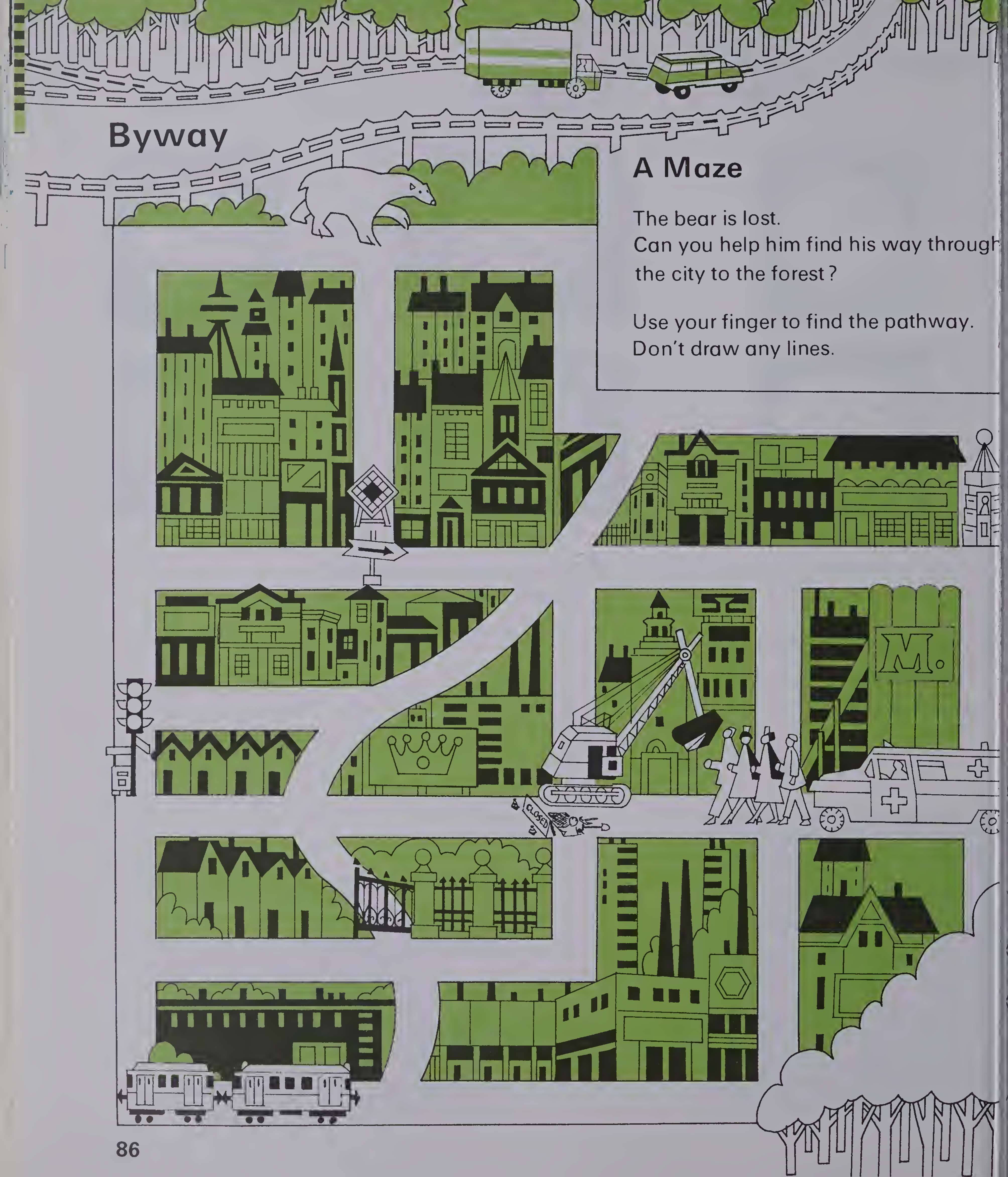
I spent	I gave the storekeeper	My change
18¢	25¢	
35¢	50¢	
62¢	75¢	
45¢	$1.00	

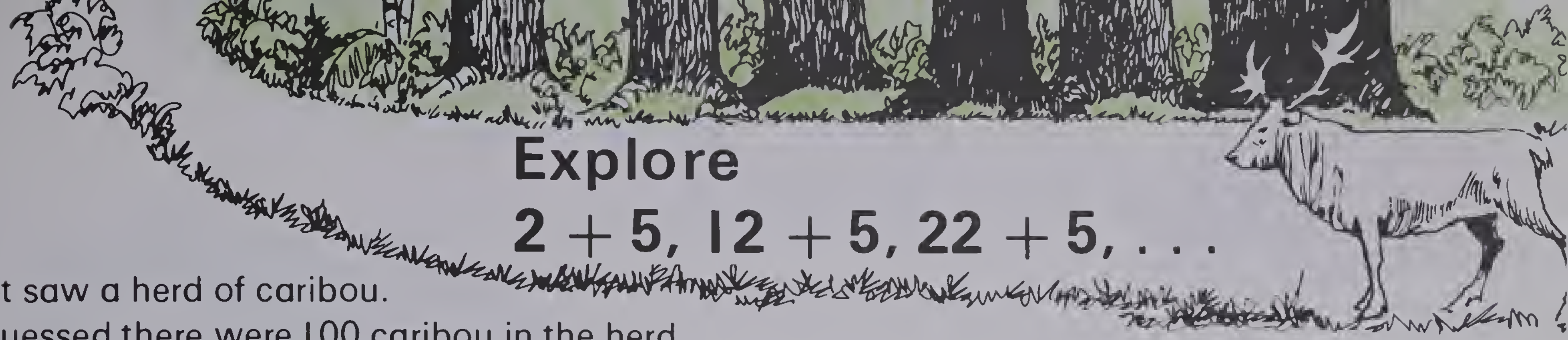
Byway

A Maze

The bear is lost.
Can you help him find his way throug
the city to the forest?

Use your finger to find the pathway.
Don't draw any lines.

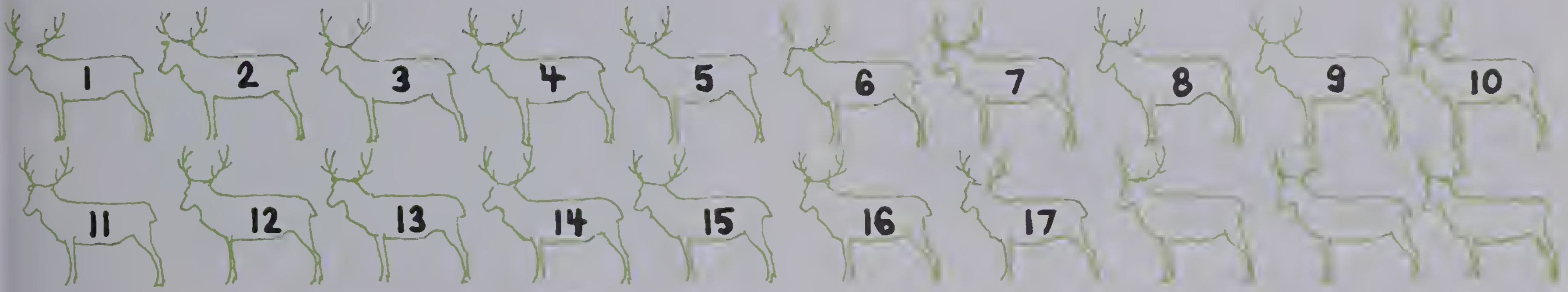




Explore

2 + 5, 12 + 5, 22 + 5, . . .

A pilot saw a herd of caribou.
She guessed there were 100 caribou in the herd.
Make a chart to show 100 caribou. Use 10 rows and 10 columns.
Number your caribou.



Count by tens, starting at any number in the chart.
Count back by tens, starting at any number.
Complete the sentences. Look for number patterns.

2 + 5 = 7
12 + 5 = ?
22 + 5 = ?

7 − 5 = 2
17 − 5 = ?
27 − 5 = ?

3 + 7 = ?
13 + 7 = ?
23 + 7 = ?

9 − 7 = ?
19 − 7 = ?
29 − 7 = ?

9 − 2 = ?
19 − 2 = ?
29 − 2 = ?

Write sentences to continue the patterns.
Choose different facts for numbers less than 10.
Write sentences to make your own number patterns.

In Action

1. Complete.

a) 6 + 3 = ?
16 + 3 = ?
26 + 3 = ?
36 + 3 = ?

b) 9 − 7 = ?
19 − 7 = ?
59 − 7 = ?
89 − 7 = ?

c) 2 + 4 = ?
22 + 4 = ?
42 + 4 = ?
92 + 4 = ?

d) 8 − 6 = ?
28 − 6 = ?
68 − 6 = ?
98 − 6 = ?

2. Write other sentences for each part of Question 1.

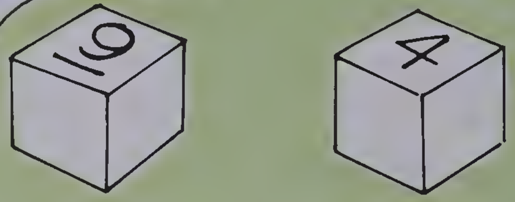
3. Add.

56	13	82	26	71
2	2	1	0	6

4. Subtract.

98	49	67	57	18
1	3	2	6	3

9 + 4, 19 + 4, 29 + 4, . . .



9 + 4 = ?
19 + 4 = ?
29 + 4 = ?
39 + 4 = ?

9 − 4 = ?
19 − 4 = ?
29 − 4 = ?
39 − 4 = ?

Start at 10. Count to 100 by tens.
Start at 100. Count back to 0 by tens.

Use 2 wooden cubes for dice.
Write 4, 5, 6, 7, 8, 9 on the faces.

Work with a partner.
Roll the dice.
Your partner writes the addition fact and the subtraction fact to start number patterns.
Take turns writing facts to continue the patterns.

In Action

1. Complete.

a) 10 − 7 = ?
20 − 7 = ?
60 − 7 = ?
90 − 7 = ?

b) 15 + 5 = ?
25 + 5 = ?
55 + 5 = ?
85 + 5 = ?

c) 12 − 9 = ?
32 − 9 = ?
42 − 9 = ?
72 − 9 = ?

d) 7 + 7 = ?
17 + 7 = ?
37 + 7 = ?
87 + 7 = ?

e) 15 − 6 = ?
35 − 6 = ?
65 − 6 = ?
45 − 6 = ?

2. Subtract.

Think		
15	95	25
9	9	9
35	65	45
9	9	9

3. Add.

Think		
9	29	49
7	7	7
89	39	69
7	7	7

4. Subtract.

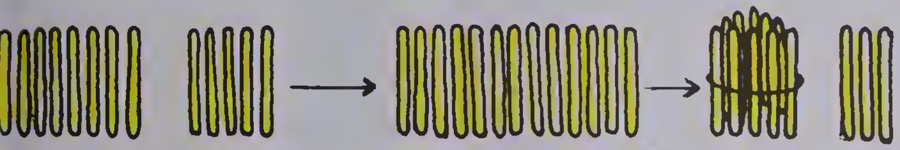
Think		
10	70	50
9	9	9
40	90	30
9	9	9

14 — 5, 24 — 5, 34 — 5, . . .

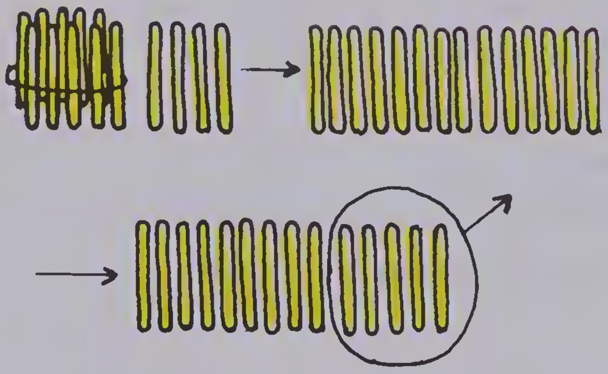
Make 10 bundles of 10 coffee sticks.
Use elastic bands.

Count to 100 by tens.
Count back to 0 by tens.

Work with a partner.
Write a fact for a number between 0 and 20, such as 8 + 5 or 14 — 5.
Your partner shows the fact with sticks and completes the sentence.

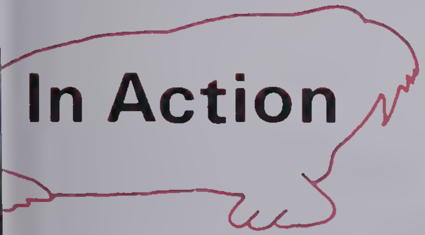


8 + 5 = 13



14 — 5 = 9

Take turns writing other sentences to make a pattern.



In Action

1. Complete.

a) 62 — 4 = ?
82 — 4 = ?

b) 22 + 8 = ?
42 + 8 = ?

c) 31 — 2 = ?
51 — 2 = ?

d) 45 + 6 = ?
75 + 6 = ?

2. Add.

$\begin{array}{r}78\\6\\\hline\end{array}$ $\begin{array}{r}56\\7\\\hline\end{array}$ $\begin{array}{r}47\\3\\\hline\end{array}$ $\begin{array}{r}63\\8\\\hline\end{array}$

$\begin{array}{r}38\\7\\\hline\end{array}$ $\begin{array}{r}61\\9\\\hline\end{array}$ $\begin{array}{r}85\\8\\\hline\end{array}$ $\begin{array}{r}29\\4\\\hline\end{array}$

3. Subtract.

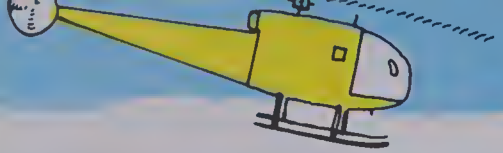
$\begin{array}{r}70\\6\\\hline\end{array}$ $\begin{array}{r}56\\7\\\hline\end{array}$ $\begin{array}{r}42\\5\\\hline\end{array}$ $\begin{array}{r}32\\3\\\hline\end{array}$

$\begin{array}{r}92\\8\\\hline\end{array}$ $\begin{array}{r}63\\4\\\hline\end{array}$ $\begin{array}{r}84\\9\\\hline\end{array}$ $\begin{array}{r}71\\7\\\hline\end{array}$

4. Complete.

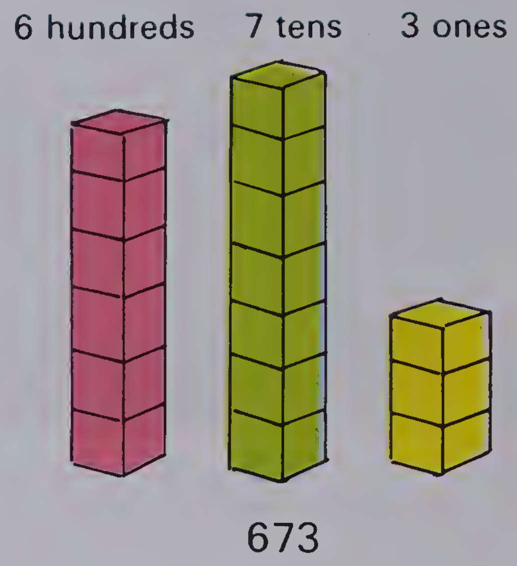
a) 35 — 8 = ?
b) 62 + 9 = ?
c) 23 — 5 = ?
d) 89 + 5 = ?
e) 81 — 7 = ?

f) 57 + 6 = ?
g) 93 — 7 = ?
h) 44 — 8 = ?
i) 52 — 7 = ?
j) 76 — 8 = ?



Explore 3-Digit Numbers

A pilot saw 600 caribou, 70 polar bears, and 3 walrus.
How many animals did she see altogether?



Work with a partner.
Use red, green, and yellow cubes.
Show a number with the cubes.
How many hundreds?
How many tens?
How many ones?
Your partner writes the numeral.
Take turns showing the number.

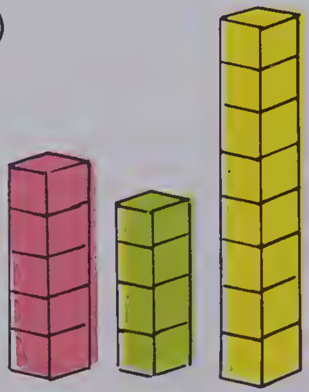
In Action

1. Complete the number patterns in your notebook.

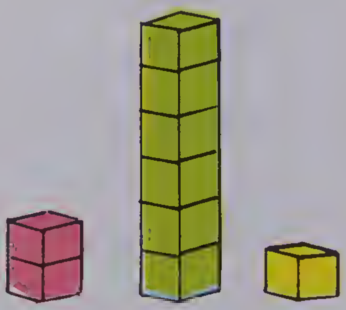
1 2 ? ? ? ? ? ? ? ?
10 20 30 ? ? ? ? ? ? ?
100 200 300 ? ? ? ? ? ? 1000

2. What is the number?
How many hundreds, tens, and ones are there?

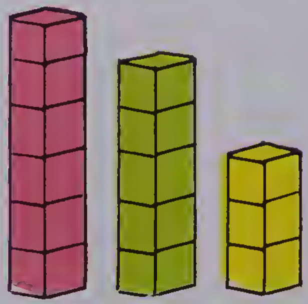
a)



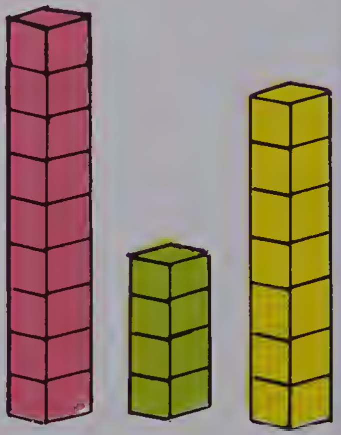
b)



c)



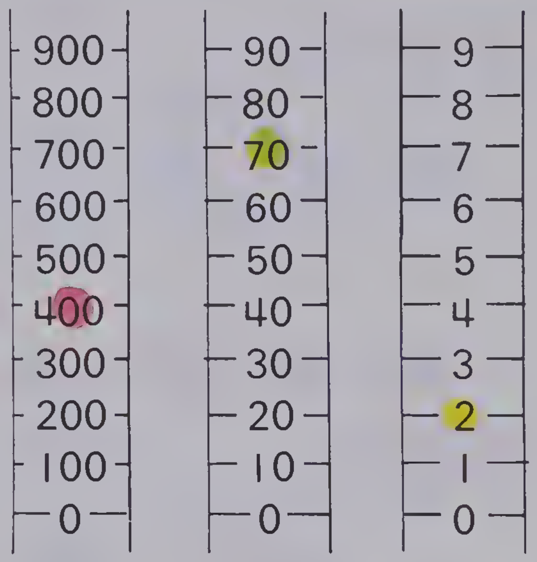
d)



472, 4 hundreds, 7 tens, and 2

Start at 1. Count by ones to 10.
Start at 10. Count by tens to 100.
Start at 100. Count by hundreds to 1000.

Make 3 number ladders: hundreds, tens, and ones.
Work with someone in your group.
Use 3 counters.
Put a counter on a rung of each ladder.
Your partner says the number,
and shows the number 3 ways.
Take turns showing numbers.



numeral → 472
long form → 400 + 70 + 2
meaning → 4 hundreds, 7 tens, and 2

In Action

1. Show each number 3 ways.

a) 624
? + ? + ?
? hundreds, ? tens, and ?

b) ?
? + ? + ?
5 hundreds, 9 tens, and 3

c) ?
200 + 30 + 7
?

d) ?
?
9 hundreds, 5 tens, and 1

e) ?
800 + 10 + 3
?

f) 756
?
?

2. Show each number on your number ladders.
Write the long form of the numbers.

a) 782 b) 943 c) 275 d) 183 e) 609 f) 346

3. Write the meaning of the numbers.

a) 915 b) 620 c) 415 d) 207 e) 836 f) 479

Retrace Your Steps

1. Count.

a) 197 198 ? ? ? ? ? ?

b) 755 756 ? ? ? ? ? ?

c) 482 481 ? ? ? ? ? ?

d) 503 502 ? ? ? ? ? ?

2. Use red, green, and yellow cubes. Show the numbers.
Write the meanings.

a) 625 b) 304 c) 967 d) 481 e) 390 f) 218

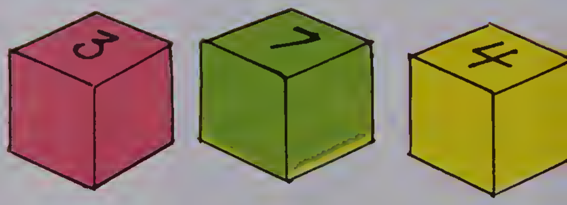
3. Write the numeral.

a) 600 + 70 + 0
500 + 20 + 7
900 + 0 + 4
400 + 60 + 2
300 + 90 + 3
700 + 80 + 5

b) 4 hundreds, 7 tens, and 3
9 hundreds, 6 tens, and 1
6 hundreds, 0 tens, and 5
8 hundreds, 5 tens, and 6
2 hundreds, 8 tens, and 4
7 hundreds, 1 ten, and 8

4. Make 3 dice from wooden cubes.
On the red one, write the numerals 3, 4, 5, 6, 7, 8.
On the green one, write the numerals 4, 5, 6, 7, 8, 9.
On the yellow one, write the numerals 2, 3, 4, 5, 6, 7.

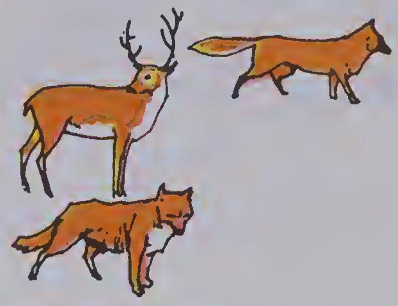
Work with a partner.
Roll the dice.
Your partner writes the numeral and the long form of the number.
Take turns rolling the dice.



374
300 + 70 + 4

Patterns

1. Continue the patterns.
   - a) 642 644 646 ? ? ? ? ?
   - b) 260 255 250 ? ? ? ? ?
   - c) 908 912 916 ? ? ? ? ?
   - d) 721 718 715 ? ? ? ? ?
   - e) 501 502 504 505 ? ? ? ?
   - f) 399 396 395 392 ? ? ? ?



2. Count by twos, by fours, and by fives.
   Start at 200 each time.

   200 ? ? ? ? ? ? ?

3. Jasper saw 500 caribou, 30 polar bears, and 8 walrus.
   How many animals did Jasper see?

4. The helicopter pilot saw 259 seals.
   Write the meaning of the number.

5. Create story problems for
   a) 473 b) 835

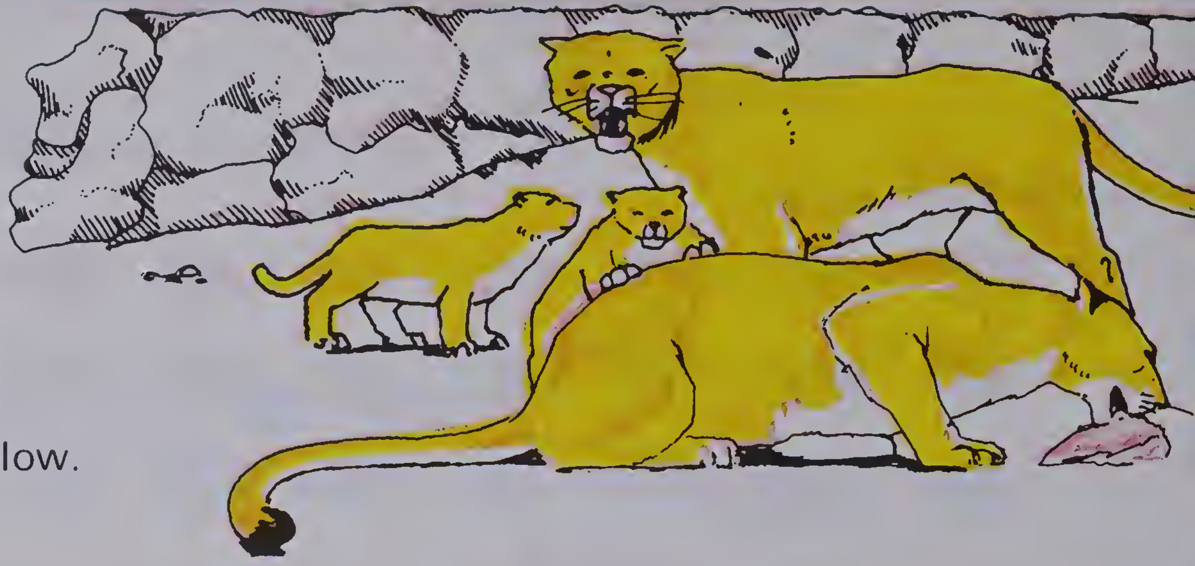
6. The Canada geese flew 200 km in one flight, 60 km on the next, and then 3 km.
   They finally landed on Baffin Island.
   How far did they fly?

7. Polar bears live in northern Canada.
   One winter, they did not see the sun for 147 days.
   Write the meaning of the number.

8. Work with a friend.
   Write a 3-digit numeral.
   Say a pattern rule.
   Your friend writes 5 numerals in the pattern.

294
subtract 2, subtract 3
292, 289, 287, 284, 282

Byway



How Do Lions Live?

Find the answer in the code below.

$d = 4$ hundreds, 3 tens, and 1
$d = ?$

$e = 500 + 60 + 7$
$e = ?$

$r = 7$ hundreds, 5 tens, and 2
$r = ?$

$l = 100 + 20 + 9$
$l = ?$

$v = 5$ hundreds, 9 tens, and 2
$v = ?$

$i = 300 + 50 + 6$
$i = ?$

$n = 6$ hundreds, 9 tens, and 5
$n = ?$

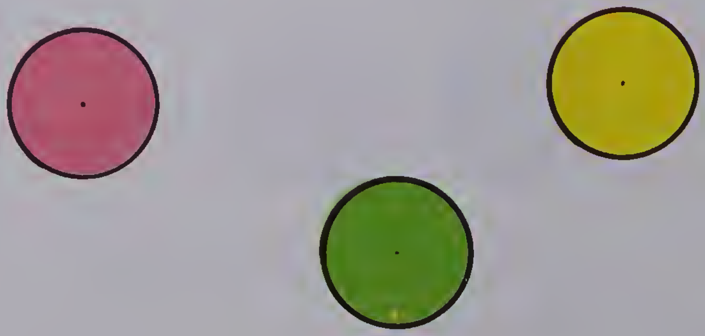
$s = 300 + 20 + 6$
$s = ?$

$o = 6$ hundreds, 5 tens, and 3
$o = ?$

$p = 200 + 80 + 1$
$p = ?$

129 356 653 695 326 129 356 592 567
356 695 281 752 356 431 567 326.

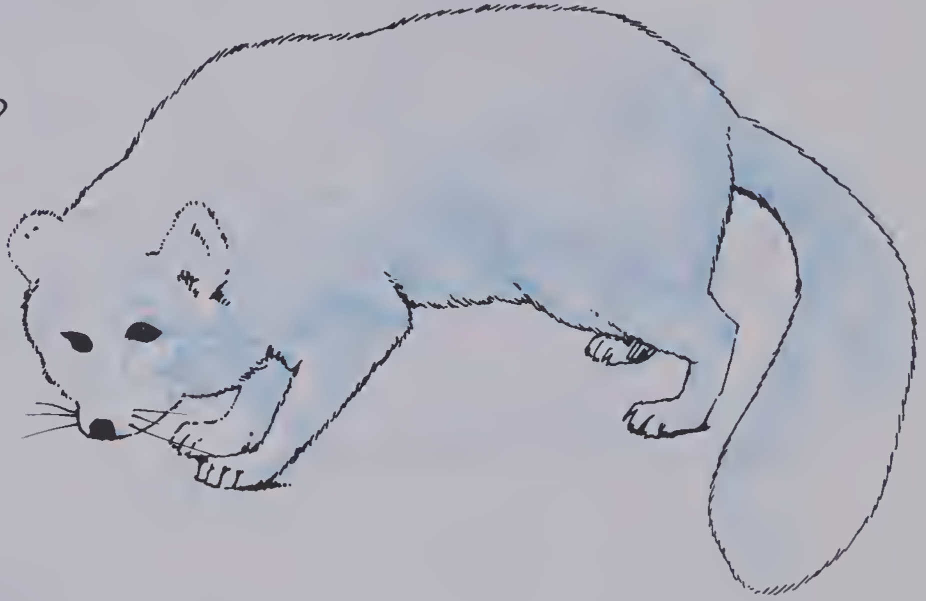
Number Ladders



Use your 3 number ladders.
Drop 3 counters onto the ladders.
Write the numeral and its meaning.

The Arctic Fox

The Arctic fox is very fast.
It can run up to 60 km/h.
What is the traffic speed limit where you live?
How much faster or slower can the Arctic fox run?



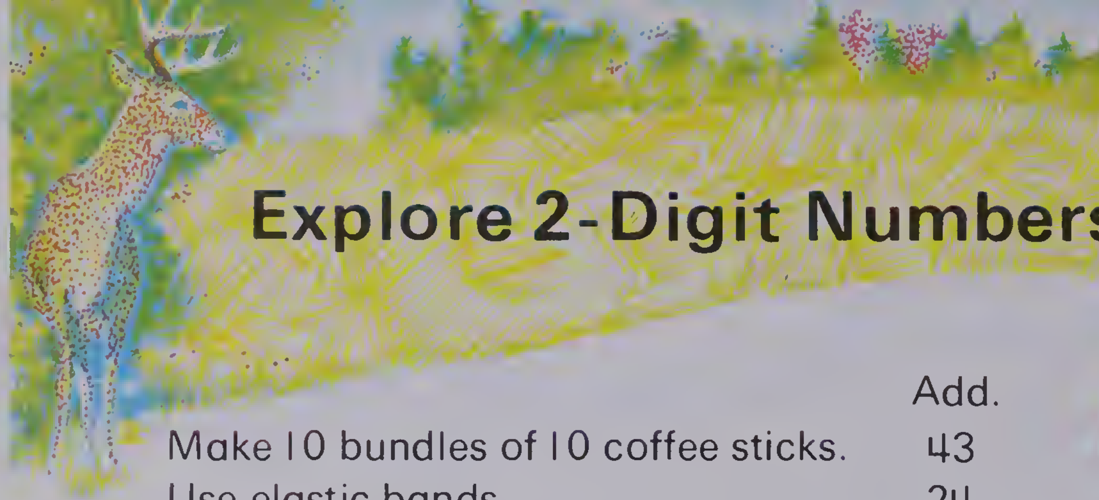
In October, the coat of the Arctic fox turns white.
A white winter coat protects
the fox from its enemies, the lynx and the wolf.
In April, the Arctic fox loses its white coat.
Its fur becomes brownish-grey once more.
During what months is the fox's coat white?
When is its coat brownish-grey?

In the winter, the air is sometimes very cold.
The Arctic fox curls up in a ball, wrapping its tail over its nose.
Even when the temperature is −30°C,
the Arctic fox can keep warm.
Find −30°C on a thermometer.
How much colder than freezing is that temperature?

In one fox family, each of 3 pups had a mass of 3 kg.
What was the total mass of the pups?

In a second fox family, each of 4 pups had a mass of 2 kg.
What was the total mass of the pups?

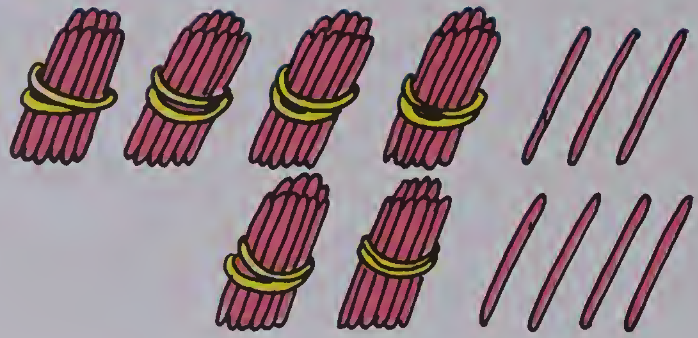
What was the mass of the 2 families of fox pups?



Explore 2-Digit Numbers

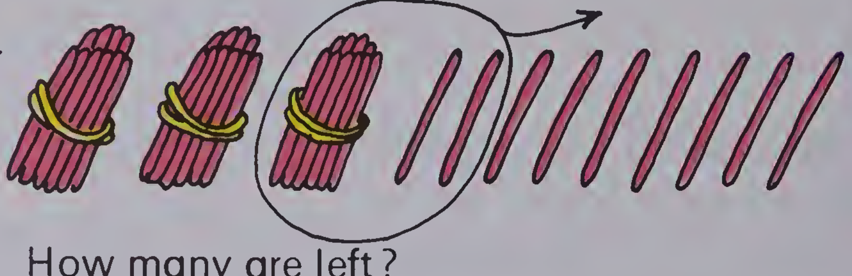
Make 10 bundles of 10 coffee sticks.
Use elastic bands.

Add.
43
24
67



How many are there altogether?

Subtract.
39
12
27



How many are left?

In Action

You may use your bundles of coffee sticks to help you find the answers.

1. Add.

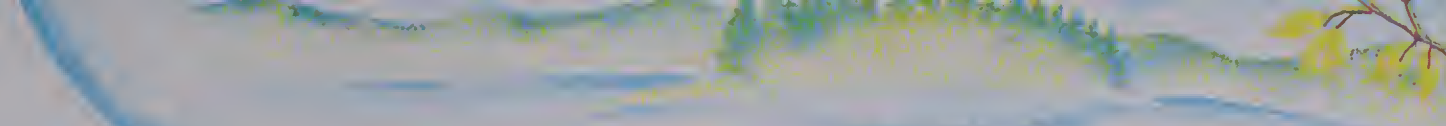
82	32	65	46	72	34
16	24	23	52	10	52
36	65	73	61	81	45
51	33	25	17	17	43

2. Subtract.

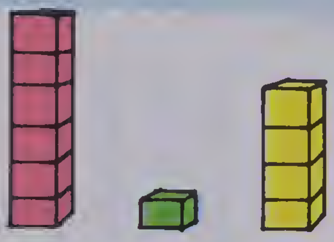
64	79	98	87	84	68
31	32	51	27	32	10
98	68	78	99	97	79
56	23	42	75	86	55

3. We saw a group of 12 deer in the park. Then we saw another group of 34 deer. How many deer did we see altogether?

These animals do not hibernate in winter.



Adding and Subtracting 3-Digit Numbers



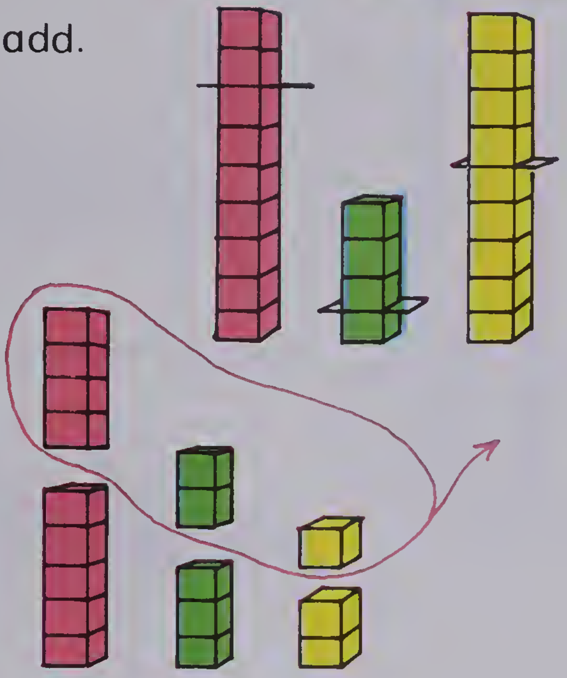
Use red, green, and yellow cubes.
Show 614 with the cubes.
Write the meaning and the long form.

Use your cubes to help you add.

715 = 700 + 10 + 5
234 = 200 + 30 + 4
? = 900 + 40 + 9

Subtract.

953 = 900 + 50 + 3
421 = 400 + 20 + 1
? = ? + ? + ?



These animals work and play in the water.

In Action

Use your cubes to help you find the answers.

1. Subtract.

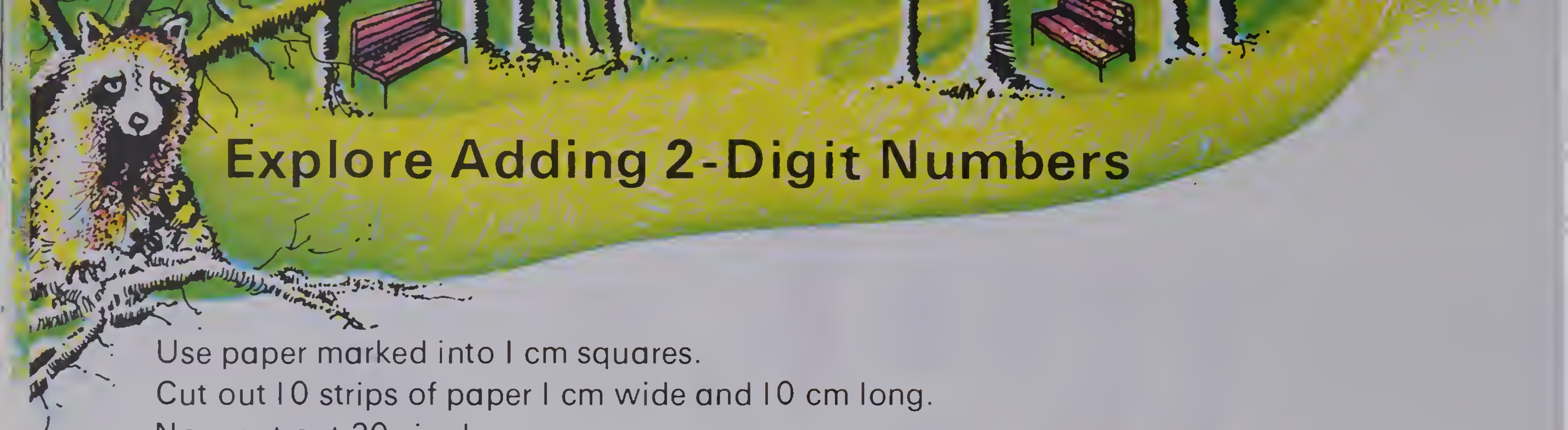
468 = ? + ? + ?
235 = ? + ? + ?

853 241	354 152	675 240	928 314	435 123	877 245
852 231	763 352	958 246	799 586	644 321	529 118

2. Add.

243 = ? + ? + ?
625 = ? + ? + ?

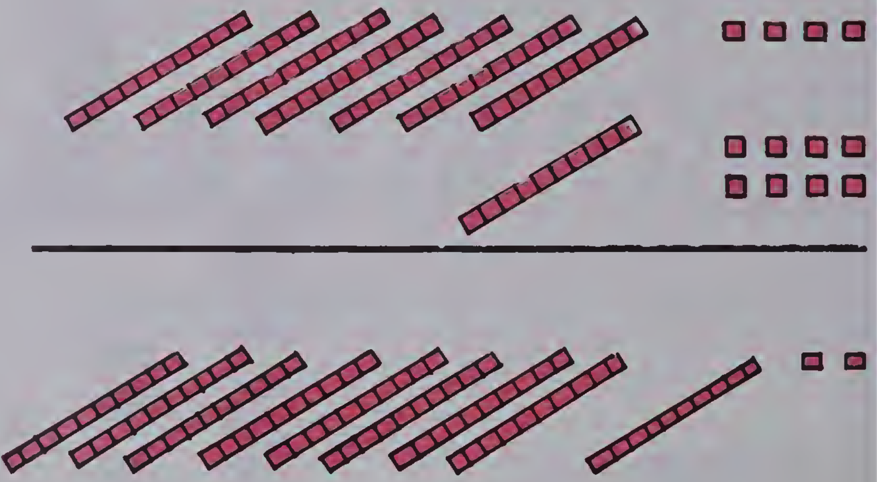
437 242	461 237	646 253	853 134	125 863	244 135
235 712	137 862	653 142	371 526	253 136	154 145



Explore Adding 2-Digit Numbers

Use paper marked into 1 cm squares.
Cut out 10 strips of paper 1 cm wide and 10 cm long.
Now cut out 20 single squares.
You can show addition facts with your strips and squares.

74 = 70 + 4
18 = 10 + 8
92 = 80 + 12



Try adding 2-digit numbers this way.

74
18
12
80
92

Where did we write the sum of the ones?
Where did we write the sum of the tens?

In Action

Use your strips and squares to show the questions.
Write the answers.

1. Add.

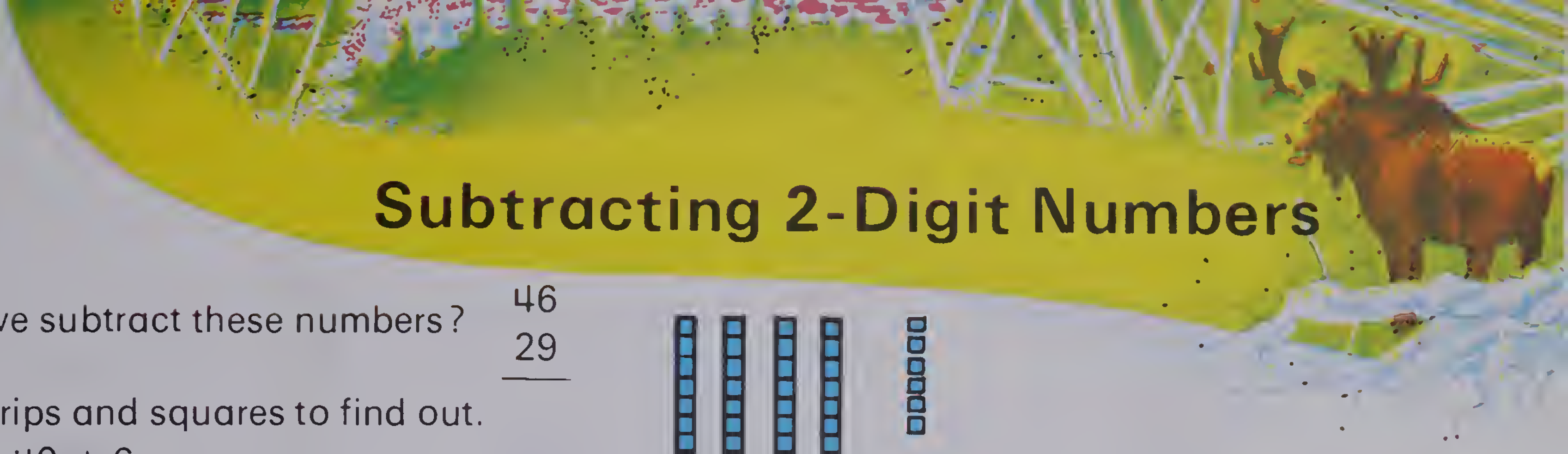
a) 34 = ? + ?
47 = ? + ?

b) 58 = ? + ?
26 = ? + ?

2. Add.

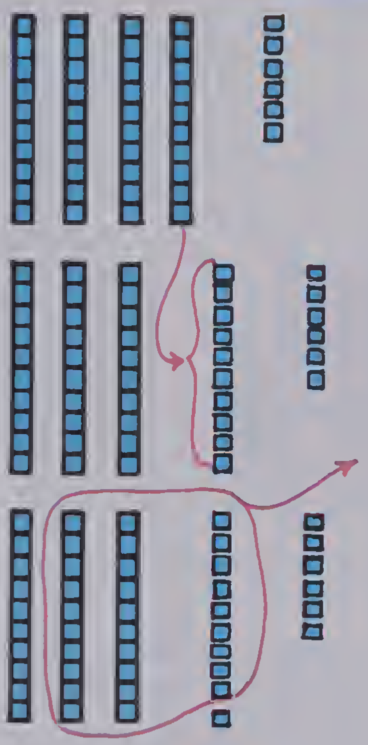
46	56	25	29	29	16	43	45	76	28
37	39	39	64	17	47	19	29	14	65
26	14	54	75	53	52	64	27	25	66
68	79	19	16	37	39	26	58	69	14
57	65	63	48	34	78	65	67	57	32
39	17	28	47	58	18	28	28	35	48

3. A racoon slept for 47 days.
It woke up to search for food.
Then it slept for 26 more days.
How many days did it sleep altogether?



Subtracting 2-Digit Numbers

How can we subtract these numbers? $\begin{array}{r} 46 \\ 29 \\ \hline \end{array}$



Let's use strips and squares to find out.

$$\begin{array}{rcl} 46 & = & 40 + 6 \\ 29 & = & 20 + 9 \\ \hline \end{array}$$

Show 40 + 6 with the strips.
Can we subtract 9 from 6?
Exchange 1 ten for 10.
What do the strips show now?
Now we can subtract 29.

$$\begin{array}{rcl} 46 & = & 30 + 16 \\ 29 & = & 20 + 9 \\ \hline 17 & = & 10 + 7 \end{array}$$

In Action

The moose is the biggest animal in our forests.

1. Show these numbers with the strips.
   Exchange 1 ten for 10 ones.
   Then write the numerals 2 ways, like this.
   64 = 60 + 4
   = 50 + 14

a) 25	c) 37	e) 82	g) 34
b) 43	d) 74	f) 56	h) 90

2. Subtract.
   Use strips and squares.

a) $\begin{array}{rcl} 76 & = & 60 + ? \\ 28 & = & ? + ? \\ \hline \end{array}$ c) $\begin{array}{rcl} 95 & = & ? + ? \\ 47 & = & ? + ? \\ \hline \end{array}$ e) $\begin{array}{r} 60 \\ 28 \\ \hline \end{array}$ g) $\begin{array}{r} 46 \\ 28 \\ \hline \end{array}$ i) $\begin{array}{r} 46 \\ 19 \\ \hline \end{array}$ k) $\begin{array}{r} 64 \\ 19 \\ \hline \end{array}$ m) $\begin{array}{r} 83 \\ 55 \\ \hline \end{array}$ o) $\begin{array}{r} 81 \\ 53 \\ \hline \end{array}$

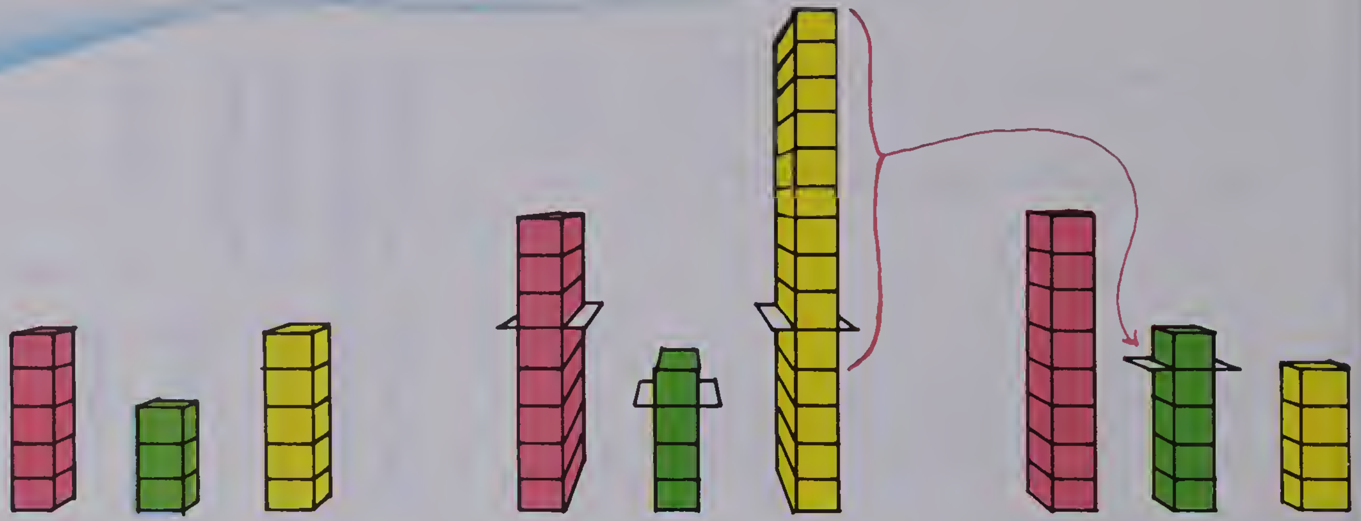
b) $\begin{array}{rcl} 82 & = & 70 + ? \\ 56 & = & ? + ? \\ \hline \end{array}$ d) $\begin{array}{rcl} 41 & = & ? + ? \\ 17 & = & ? + ? \\ \hline \end{array}$ f) $\begin{array}{r} 57 \\ 39 \\ \hline \end{array}$ h) $\begin{array}{r} 72 \\ 47 \\ \hline \end{array}$ j) $\begin{array}{r} 80 \\ 35 \\ \hline \end{array}$ l) $\begin{array}{r} 91 \\ 68 \\ \hline \end{array}$ n) $\begin{array}{r} 90 \\ 78 \\ \hline \end{array}$ p) $\begin{array}{r} 92 \\ 37 \\ \hline \end{array}$

3. The moose family was 73 km from the lake.
   Then they travelled 29 km towards the lake.
   How far were they from the lake?

Adding 3-Digit Numbers

Use red, green, and yellow cubes to help you add.

$$\begin{array}{r} 535 \\ 319 \\ \hline \end{array}$$



Start with 535.

Add 319.

Exchange 10 for 1 ten.

Can you write the addition 2 ways?

Did you write it like this?

$$\begin{array}{rcl} 535 & = & 500 + 30 + 5 \\ 319 & = & 300 + 10 + 9 \\ \hline 854 & = & 800 + 40 + 14 \end{array}$$

And like this?

$$\begin{array}{r} 535 \\ 319 \\ \hline 14 \\ 40 \\ 800 \\ \hline 854 \end{array}$$

In Action

1. Add. Use the long form.

a) 364 = 300 + ? + ?
129 = ? + ? + ?

b) 673
309

c) 437
256

d) 215
428

e) 126
765

f) 158
804

g) 387
504

2. Add. Use the shorter form.

a) 759
217
16
?
?

b) 537
106

c) 456
215

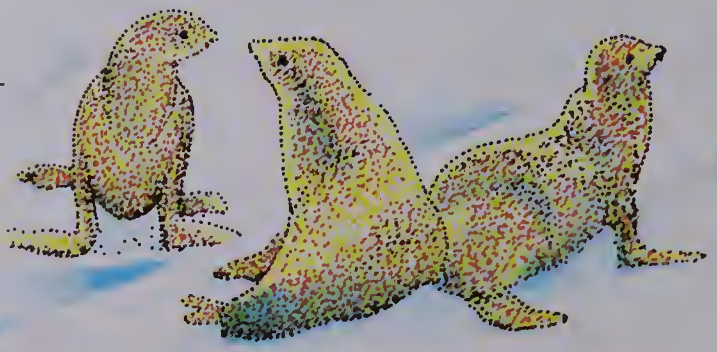
d) 173
808

e) 309
564

f) 645
229

g) 118
773

3. A herd of 328 seals started to migrate south one day.
The next day a herd of 456 seals joined them.
How many seals migrated south?

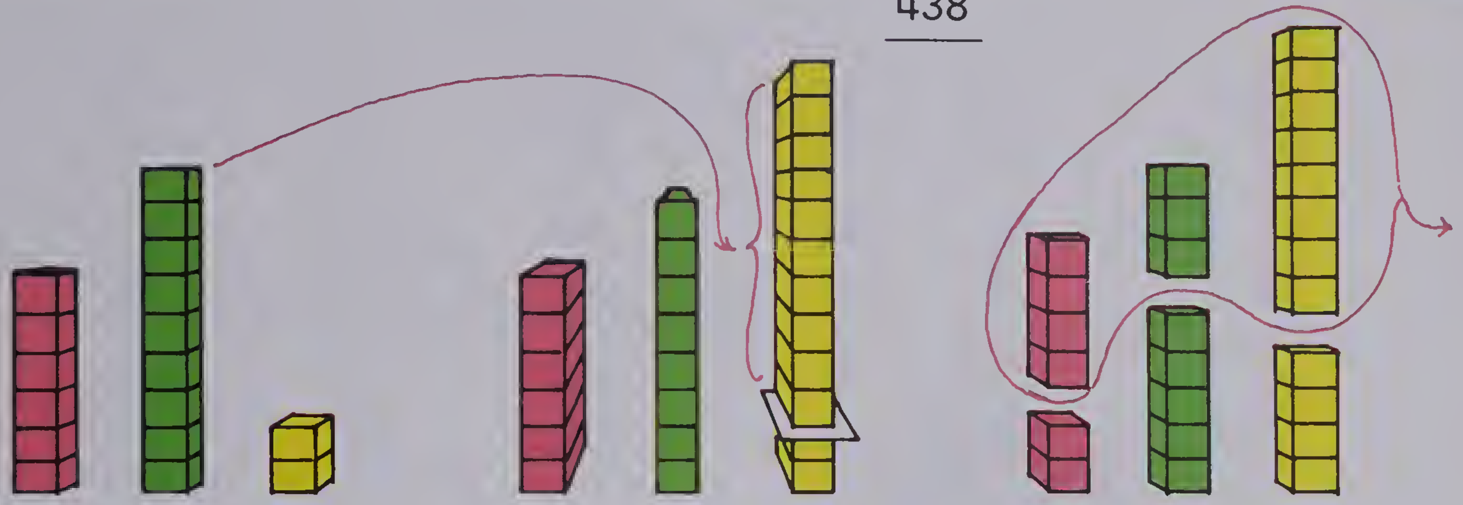


These water animals live in the North.

Subtracting 3-Digit Numbers

Use red, green, and yellow cubes to help you subtract.

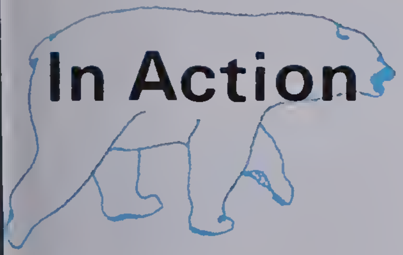
692
438



Start with 692. Exchange 1 ten for 10. Subtract 438.

Write your subtraction question like this.

692 = 600 + 80 + 12
438 = 400 + 30 + 8
254 = 200 + 50 + 4



In Action

1. Subtract.
You may use your cubes to help you find the answers.

a) 946 = 900 + 30 + ?
418 = ? + ? + ?

b) 534
317

c) 684
248

d) 560
245

e) 462
147

f) 751
329

g) 873
526

h) 990
743

i) 531
413

j) 881
636

k) 982
757

2. Work with a partner.
Show a 3-digit number with your cubes.
Your partner shows another 3-digit number.
Subtract the numbers.
Take turns showing the first number.

These land animals live in the North.

Retrace Your Steps

Use strips and single squares to help you find the answers.

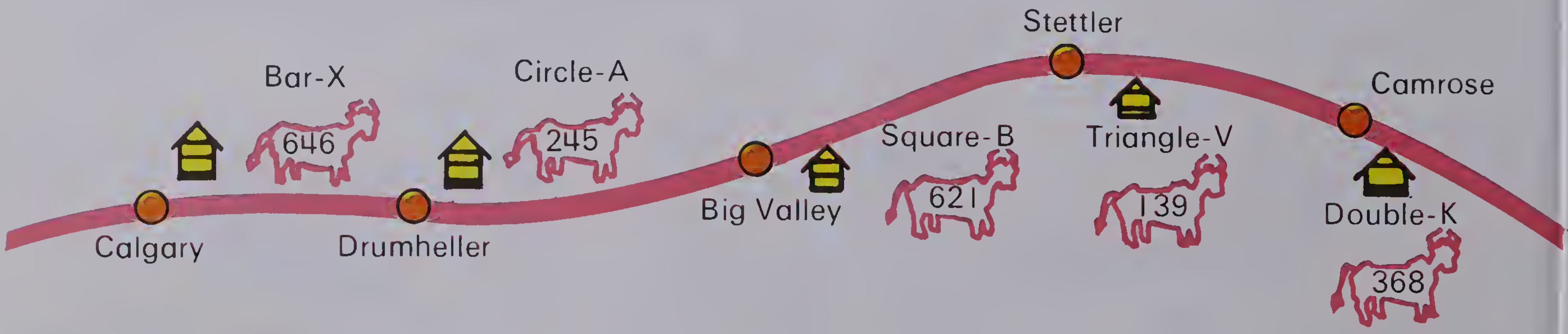
1. Add.

73 24	243 528	58 29	19 64
562 324	43 29	33 45	258 721
46 23	734 126	26 48	36 58
156 723	78 19	624 258	53 27
57 28	675 307	365 127	28 19
285 406	17 78	453 326	66 24
37 45	469 525	242 315	81 309

2. Subtract.

647 214	91 53	73 46	62 37
94 61	982 416	28 19	91 86
339 200	82 39	174 69	82 34
64 38	895 659	366 129	88 19
752 427	60 18	465 238	73 58
43 26	871 164	812 507	45 26
973 438	84 57	948 639	50 33

3. Alberta Ranches


Bar-X
646
Circle-A
245
Stettler
Camrose
Square-B
621
Triangle-V
139
Calgary
Drumheller
Big Valley
Double-K
368

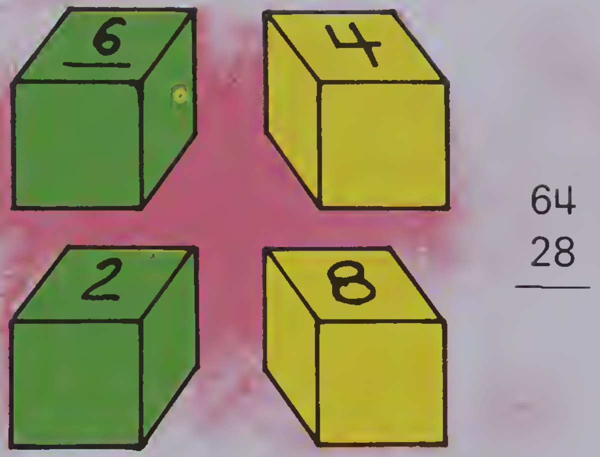
How many cattle are there at the Bar-X and the Circle-A ranches altogether?
How many more cattle are on the Double-K ranch than on the Triangle-V ranch?
How many cattle are there altogether at the Square-B and the Triangle-V ranches?

Byway

Roll a Fact

Use 2 wooden cubes to make dice.
Write the numerals 1, 2, 3, 4, 5, 6 on a green die, to show tens.
Write the numerals 4, 5, 6, 7, 8, 9 on a yellow die, to show ones.

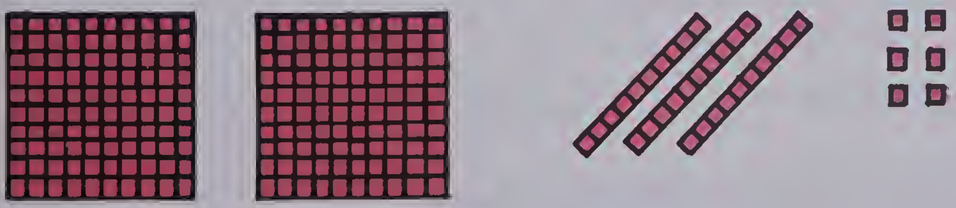
Play this game with a classmate.
Roll the dice and write the numeral.
Your partner rolls the dice and writes that numeral.
Add the numbers.
Your partner subtracts.
Take turns adding and subtracting.



Sub-3

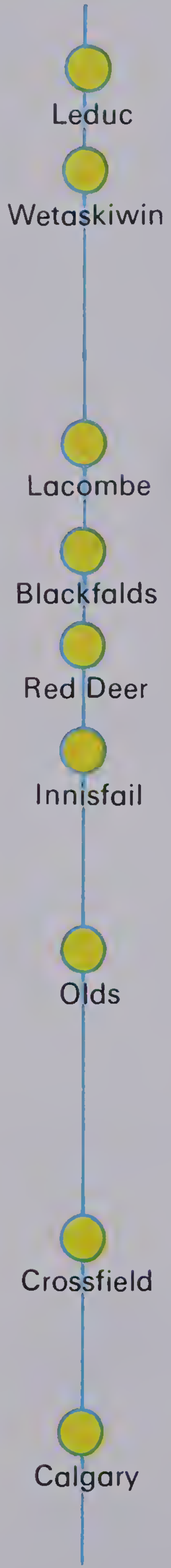
Use paper marked into 1 cm squares.
Cut out 9 squares of paper 10 cm long and 10 cm wide.
How many small squares make up each large square?

Use your large squares and the strips and small squares you made for page 98.
Work with another person in your group.
Show a 3-digit number, like 236.



Move away some of the squares and strips.
Write the subtraction sentence.
Take turns showing numbers.

Round-Up



1. A cowboy took 543 cattle from Leduc to Wetaskiwin.
   Another cowboy with 319 cattle joined him.
   How many cattle did they have?

2. The cowboys went on to Lacombe and sold 238 cattle.
   How many cattle did they have left?

3. They rode on to Blackfalds and met a friend with 137 Angus cattle.
   How many cattle were going south then?

4. At Red Deer the cowboys bought 29 Shorthorn cattle.
   How many cattle did they have then?

5. When the cowboys arrived at Innisfail, they left 324 cattle in the corral.
   How many cattle were still headed south?

6. The cowboys rode south to Olds.
   They sold 137 cattle in one day.
   How many cattle were left?

7. In Crossfield, the cowboys bought 64 cattle.
   How many cattle were they taking south then?

8. When they reached Calgary, the 3 cowboys sold 390 cattle.
   How many cattle did they have left?

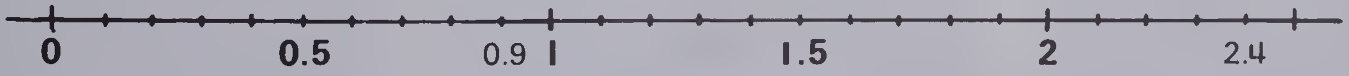
The Snowshoe Rabbit

A Snowshoe rabbit usually stays close to home. When something frightens it, a Snowshoe rabbit can run 35 km/h. How much faster can an Arctic fox run?

Snowshoe rabbits can be from 20 cm long to 45 cm long.

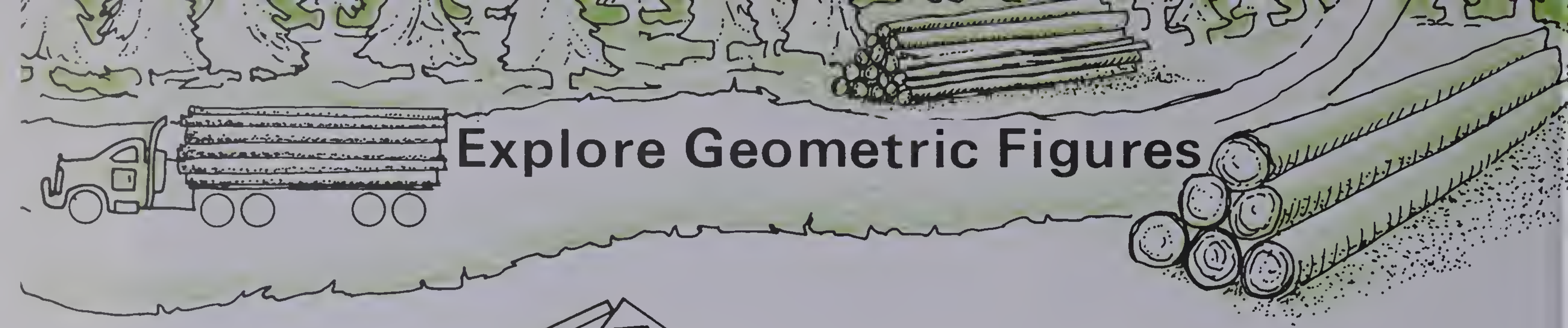
By how much can their lengths differ?

Rabbits have very large families. One mother rabbit had 3 litters in one year. In each litter there were 5 kits. How many kits did she have that year? Another mother had 2 litters. In each of her litters there were 4 kits. How many kits did she have altogether? How many kits were in the 2 families?

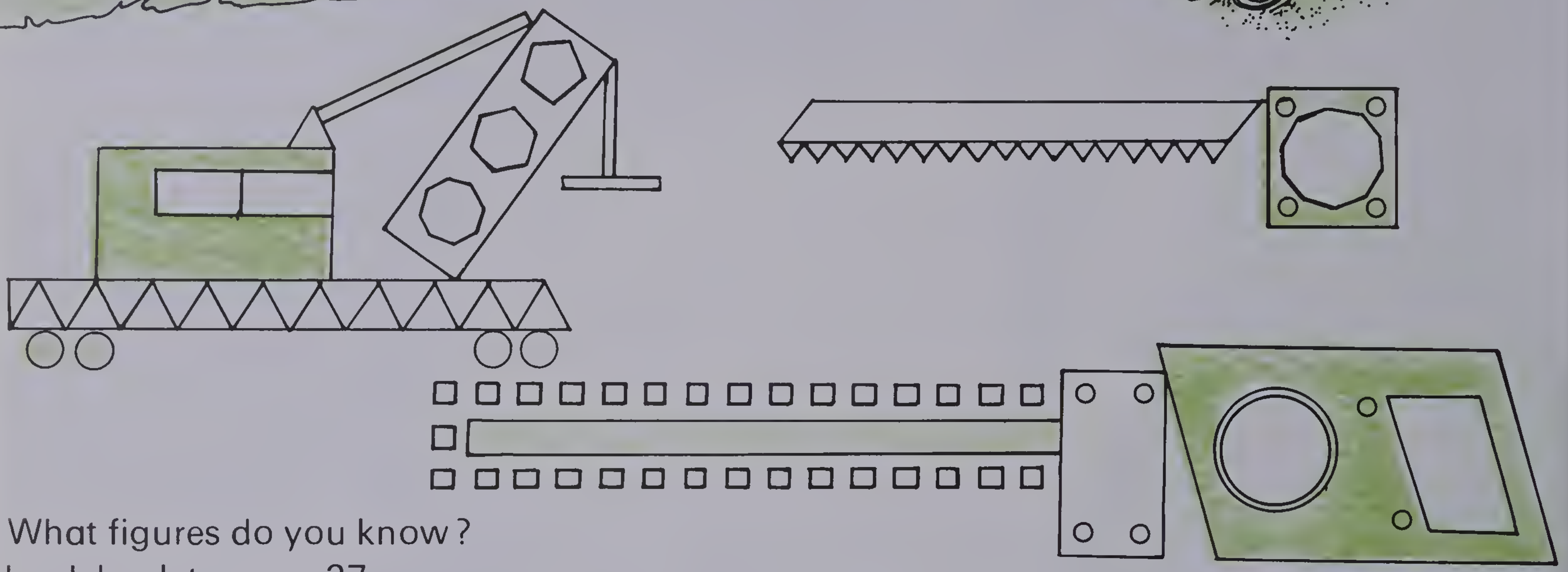


The mass of a Snowshoe rabbit can be from 0.9 kg to 2.4 kg. By how much can their masses differ? Use the number line to find the answer.

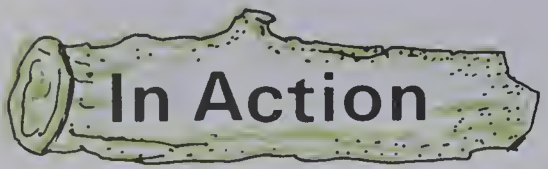
Write a story about a Snowshoe rabbit.



Explore Geometric Figures



What figures do you know?
Look back to page 27.
Which models contain each figure?

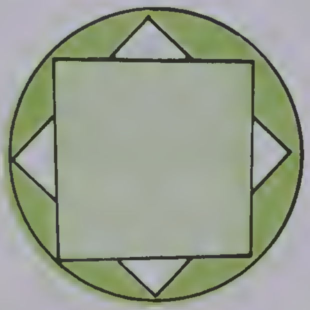


In Action

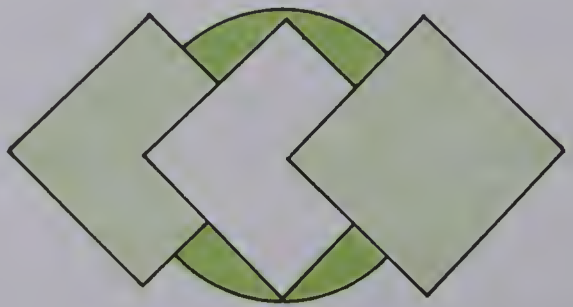
1. a) How many ways can you divide a square into 4 equal parts?
   b) Try it with a rectangle.
   c) What is 1 part called?
   d) Try to divide a circle or a triangle into 4 equal parts.

2. Use the figures on your *mathways* ruler to draw shapes.
   Cut out the shapes to make these patterns.

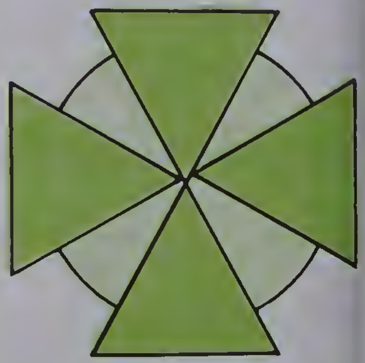
a)



b)



c)



3. Create other patterns.

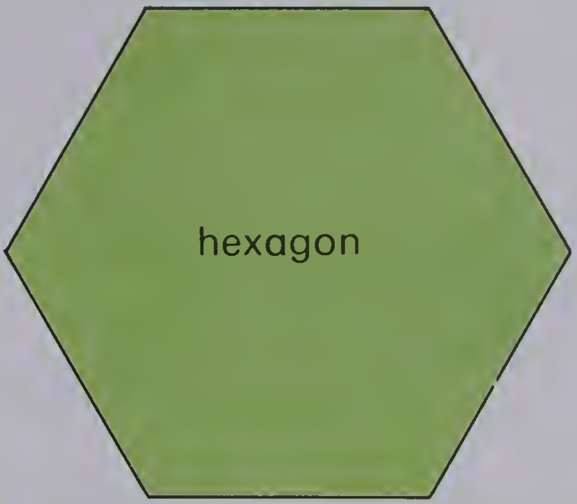
Explore Shapes

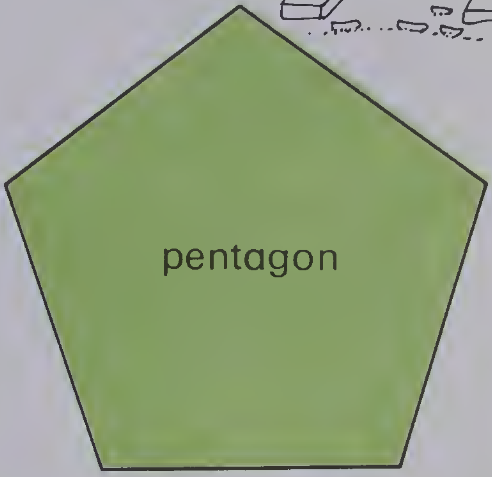
Trace each of these figures.

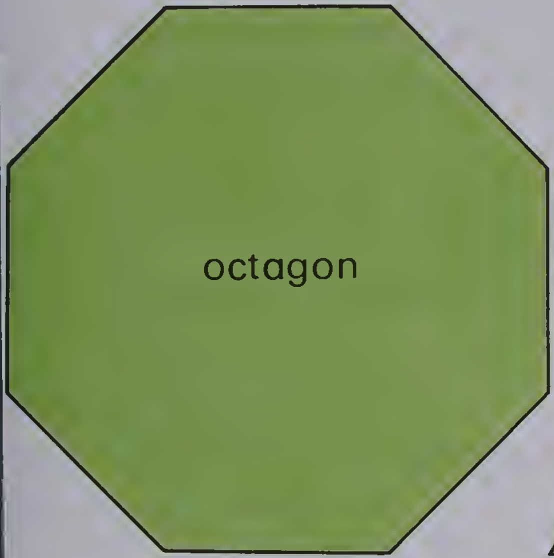
Write its name inside your drawing.

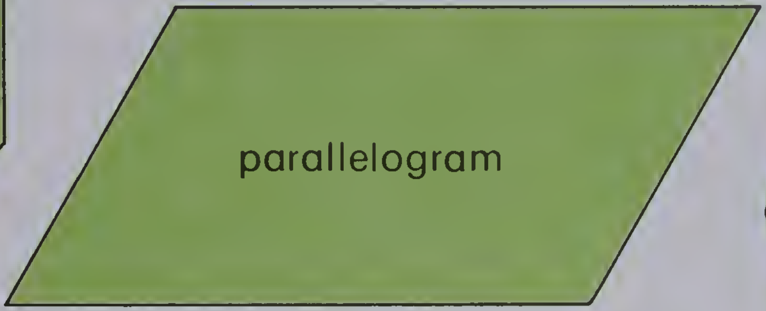
How many sides does it have?

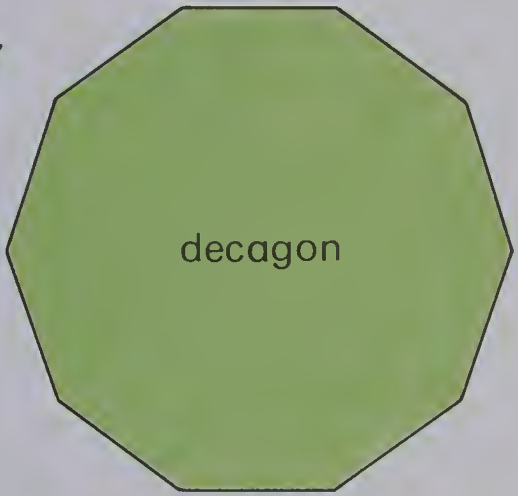
How many vertices does it have?








parallelogram

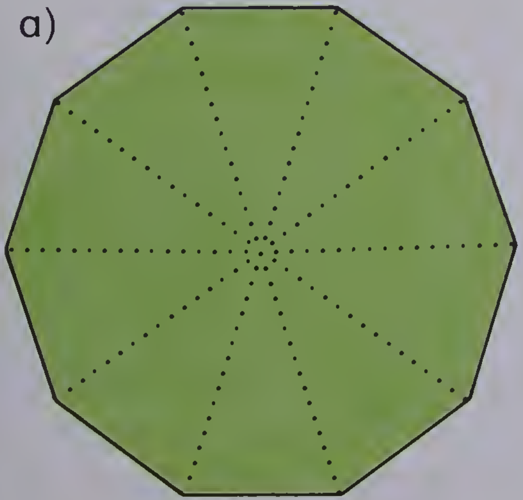


In Action

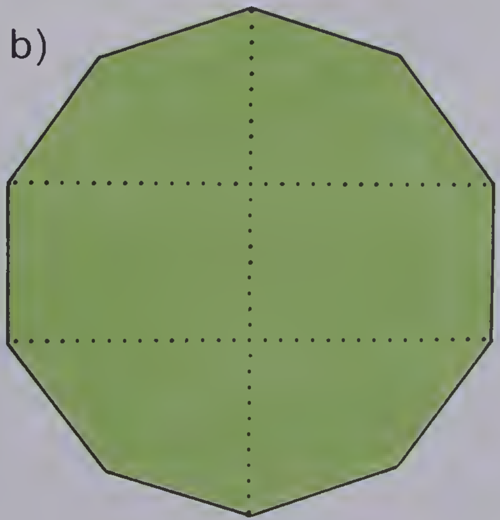
1. Make a list of things you have seen that look like
   a) parallelograms,
   b) hexagons,
   c) octagons.

2. Use the decagon on your *mathways* ruler.
   Cut out 3 decagons.
   Fold them to make these patterns.
   Colour your patterns.

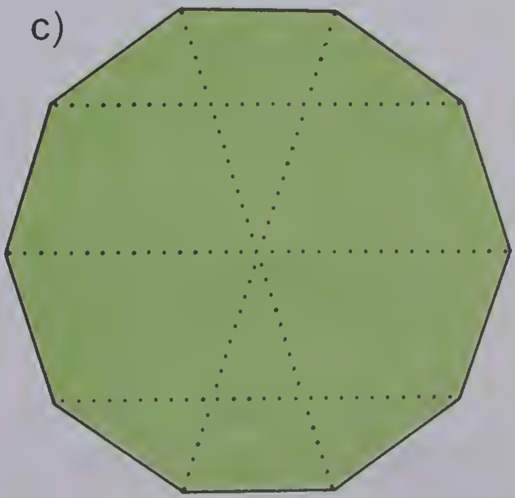
a)



b)



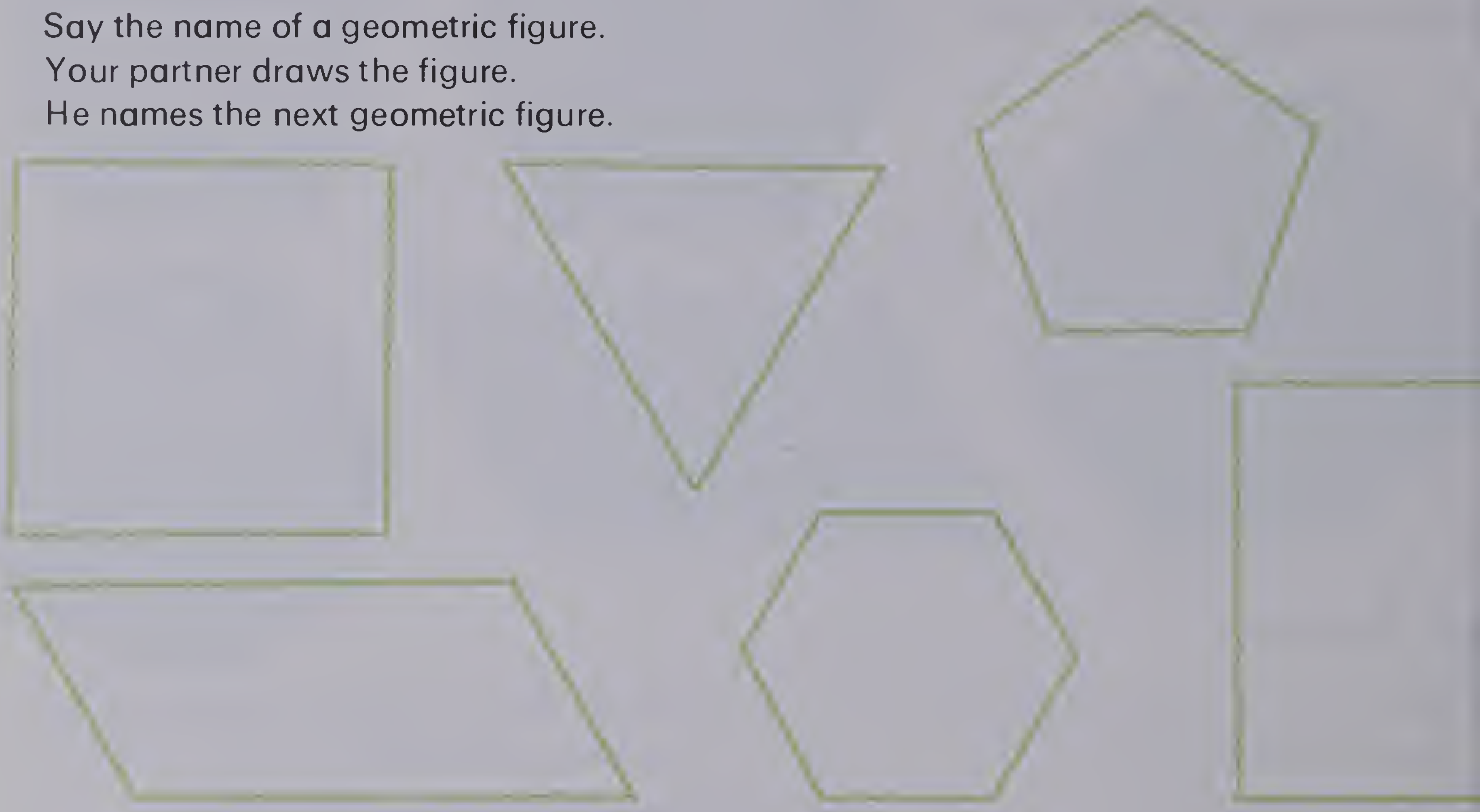
c)



In Action

1. Work with a partner.
   Draw a geometric figure.
   Your partner tells its name.
   He draws the next figure.

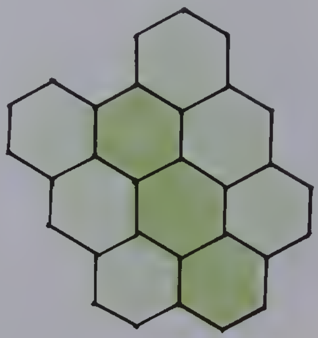
   Say the name of a geometric figure.
   Your partner draws the figure.
   He names the next geometric figure.

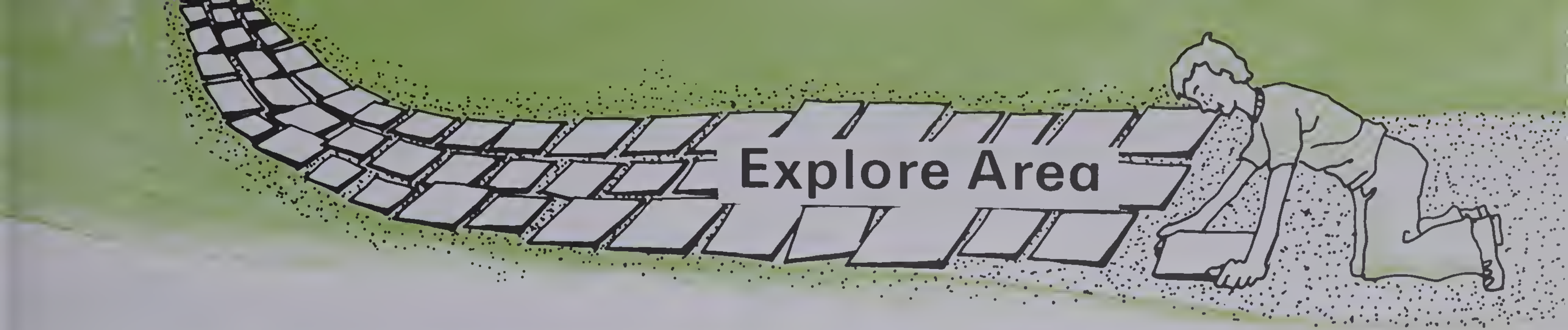


2. You will need tracing paper, 2 sheets of coloured paper, scissors, and paste.
   Choose one of the geometric figures above.
   Trace the figure to make a shape. Cut out the shape.
   Draw around the cut-out on the coloured paper.
   Cut out several different shapes.

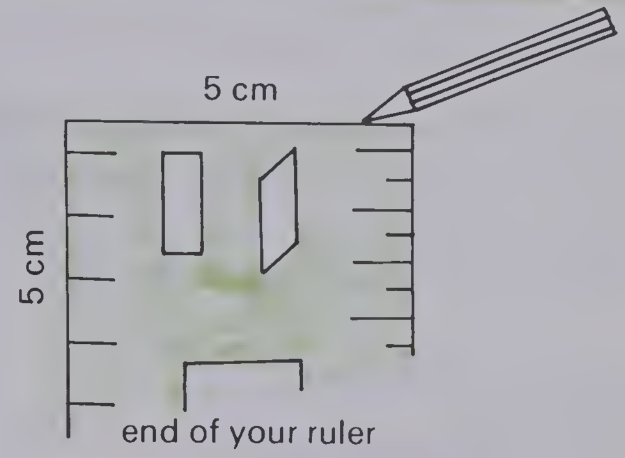
   Will the shapes fit together to cover a page in your notebook?
   Will any space be left uncovered?

   Paste the shapes in your notebook.
   Make a pattern with the shapes.





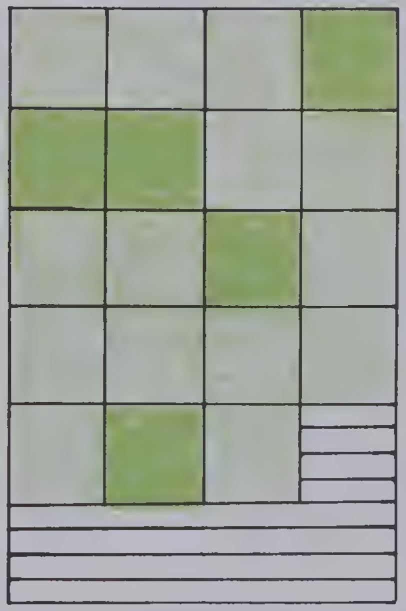
Explore Area



Use your ruler to draw a square on cardboard.
Cut out your shape.
Draw around your square on coloured paper.
Cut out 20 squares.

Work with someone in your group.
How many squares do you have altogether?

Cover a page in your notebook with squares.
How many squares did you use?
The **area** of the page is about 24 square units.



Now cover your chair seat.
How many squares did you use?
What is the area?

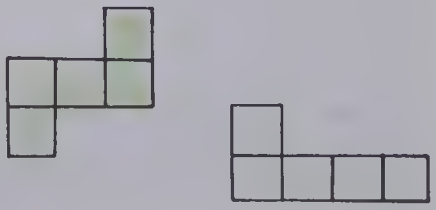
In Action

1. Use your squares.
   Find the areas.

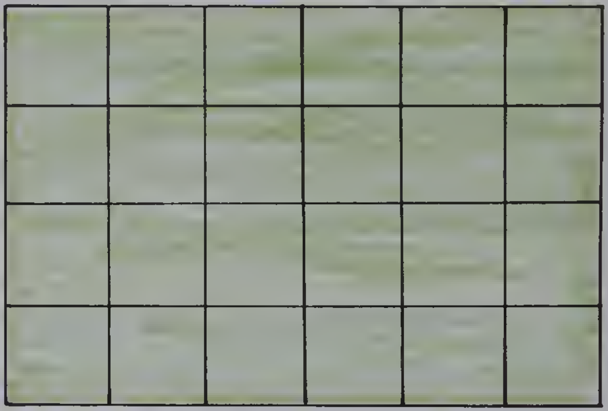
   a) top of a tissue box
   b) cover of your reader
   c) lid of a game box
   d) one floor tile
   e) this page

2. How could you find the area
   of the floor of your classroom?
   Work with a partner
   to find a way.

3. Use 5 of your squares to make patterns.
   One side of each square must touch a side of another square.
   A pattern made from 5 squares is called a **pentomino**.
   How many different pentominoes can you make?

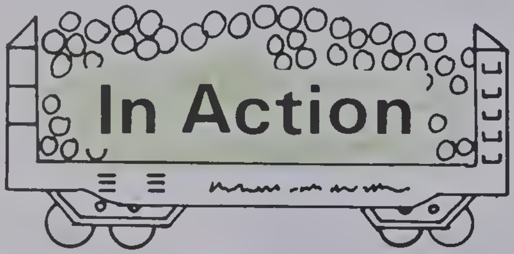


Counting Squares



This rectangle is marked into small squares.

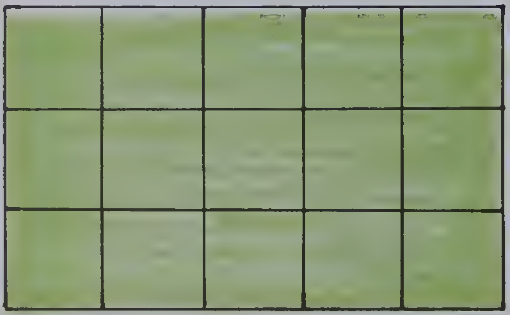
Each small square has an area of 1 cm².
We write **cm²** to stand for **square centimetre**.
Count the squares to find the area of the rectangle.
Write the area like this : **24 cm²**



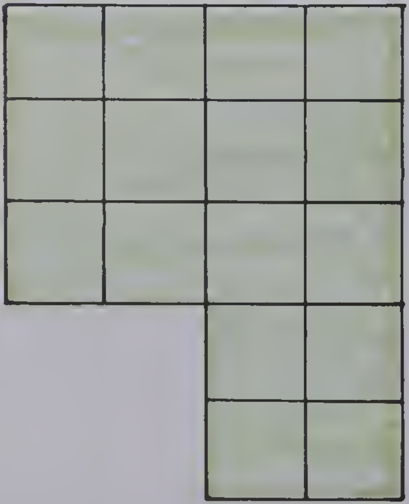
In Action

1. What is the area of each shape?

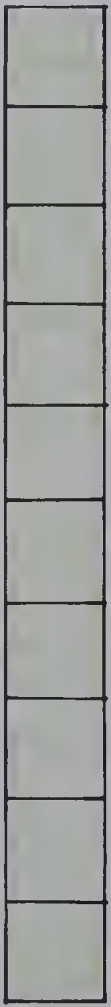
a)



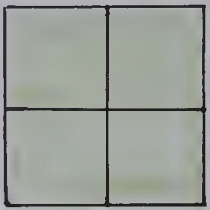
b)



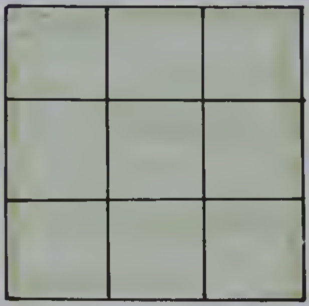
c)



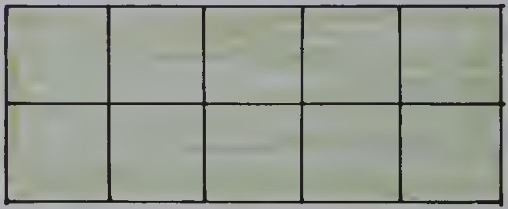
d)



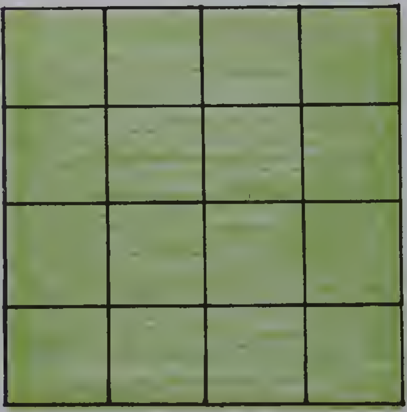
e)



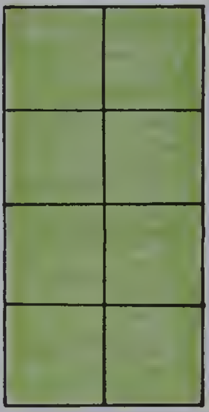
f)



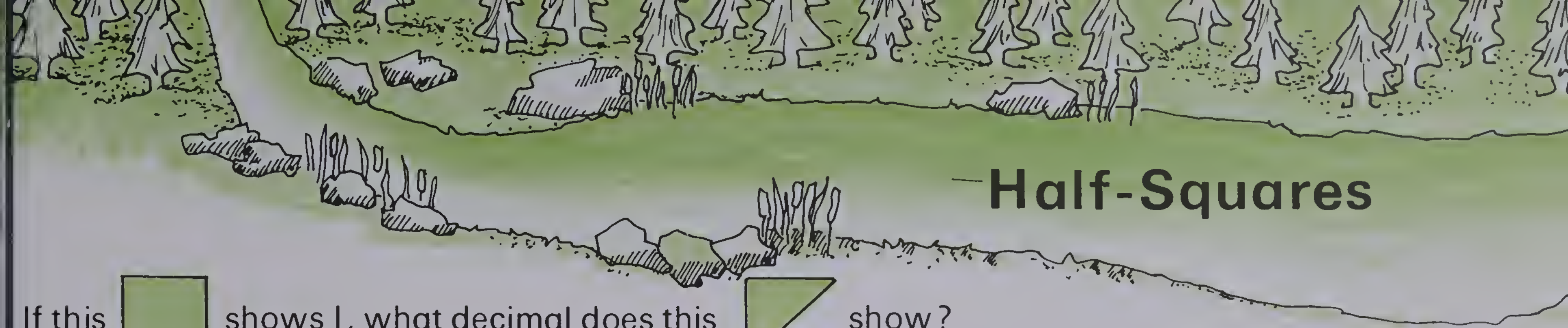
g)



h)



2. Can you think of a faster way to find the area of a square or rectangle?



Half-Squares

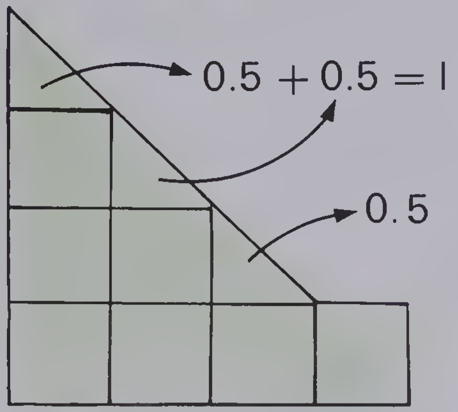
If this 🟩 shows 1, what decimal does this ◤ show?

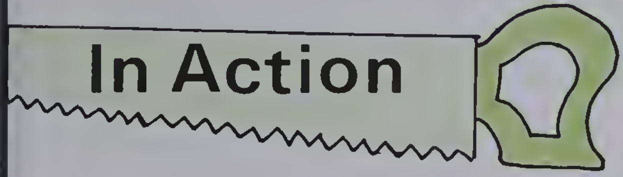
If this 🟩 has area 1 cm², what is the area of this? ◥

How many of these ◢ make 1 of these? 🟩

Find the area of this shape.
Count squares and half-squares.
Did you write the area like this?

8.5 cm²

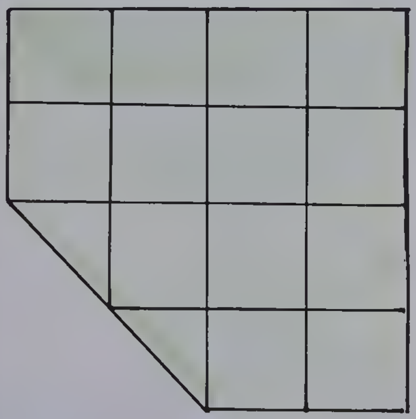




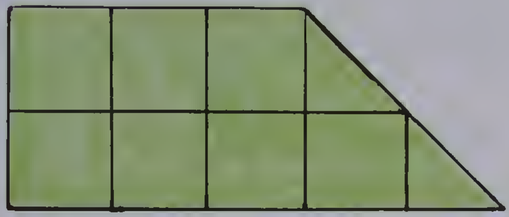
In Action

Find the area of each shape.

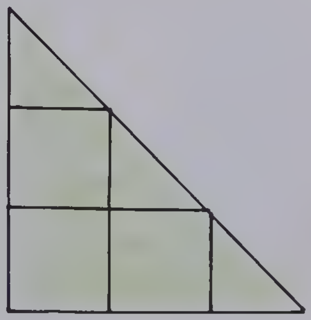
1.



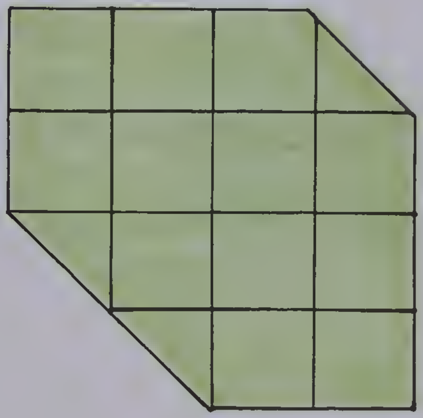
2.



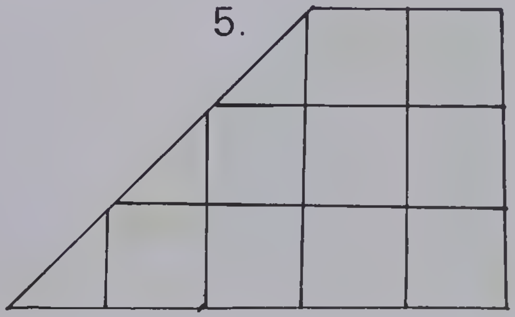
3.



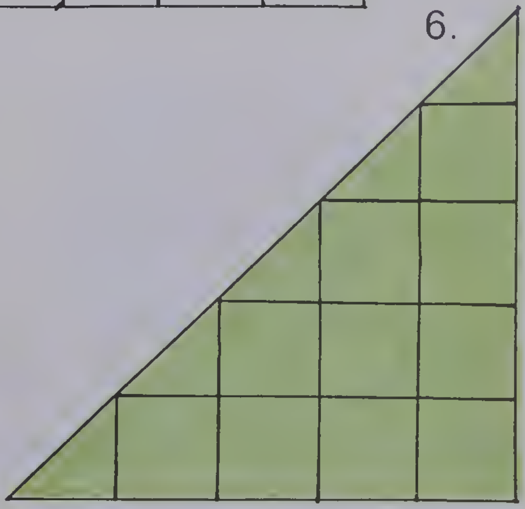
4.



5.



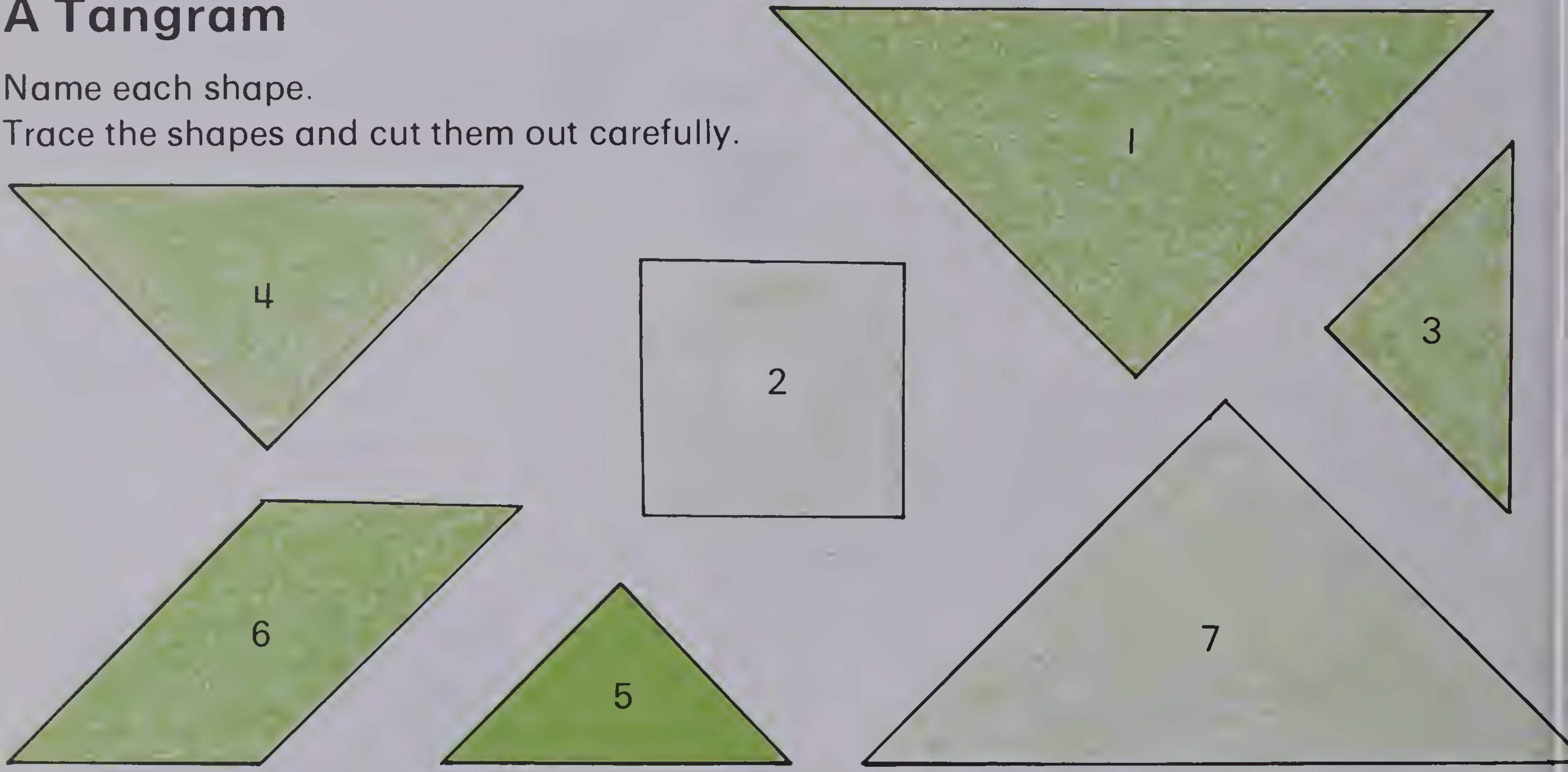
6.



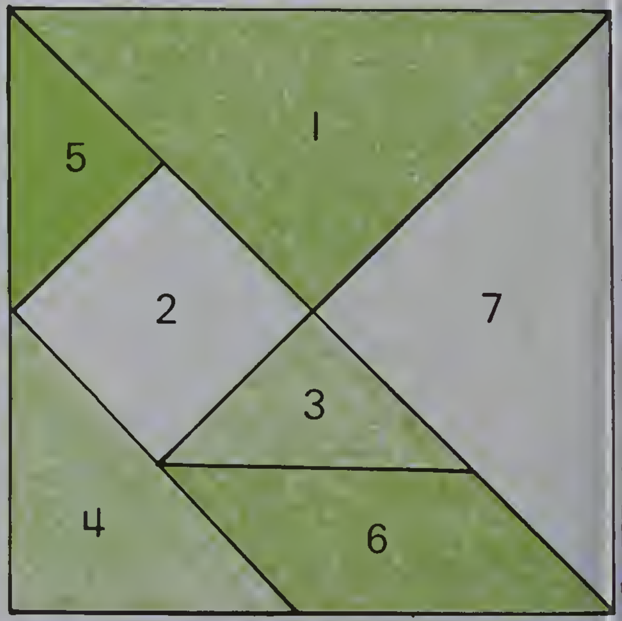
Byway

A Tangram

Name each shape.
Trace the shapes and cut them out carefully.



The shapes fit together like this to form a large square.



Use the shapes.
Make squares, rectangles, triangles, and parallelograms.

Make a large rectangle, a large triangle, and a large parallelogram.

Try to use all the shapes each time.
Make pictures with the shapes.

Explore
Exchanging 10 for 1

Complete the charts in your notebook.
Use play money to help you.

Exchange 10 for 1.

10 pennies	? dime
10 dimes	? dollar
10 nickels	? fifty-cent piece
30 pennies	? dimes
20 dimes	? dollars
20 nickels	? fifty-cent pieces

Exchange 1 for 10.

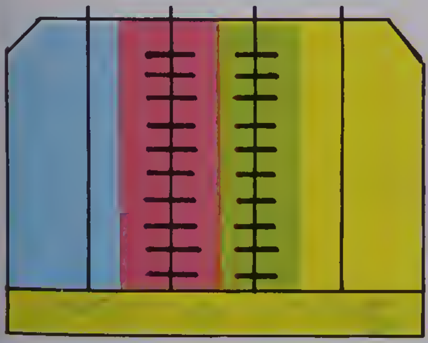
2 dimes	? pennies
4 dimes	? pennies
2 fifty-cent pieces	? nickels
3 dollars	? dimes
1 dollar	? dimes
5 dollars	? dimes

In Action

1. How many cents?

   a) 3 dimes, 5 pennies
   b) 6 dimes, 0 pennies
   c) 3 dimes, 4 pennies
   d) 0 dimes, 1 penny
   e) 1 dime, 1 penny

2. Exchange 1 for 10.

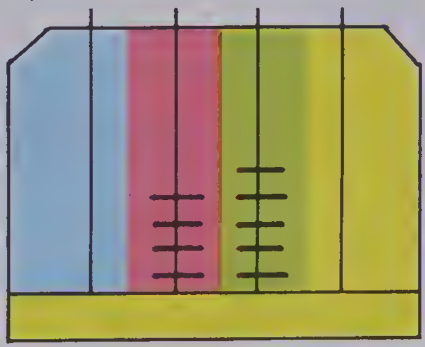


2 red	? green
5 red	? green
? red	30 green
? red	60 green
? red	100 green

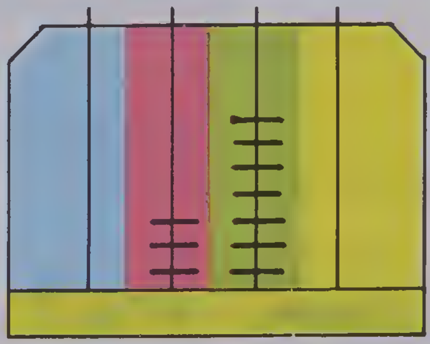
1 red disc = 10 green discs.

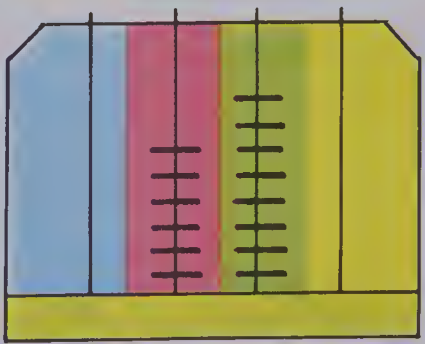
3. Write the numerals.
   1 red disc means 10.
   1 green disc means 1.

a)

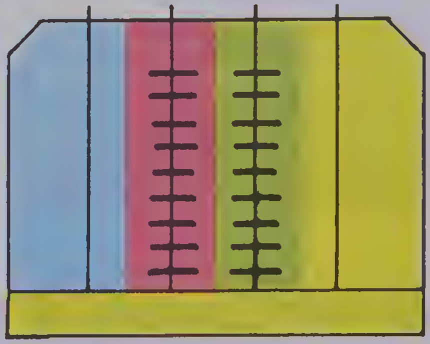


c)





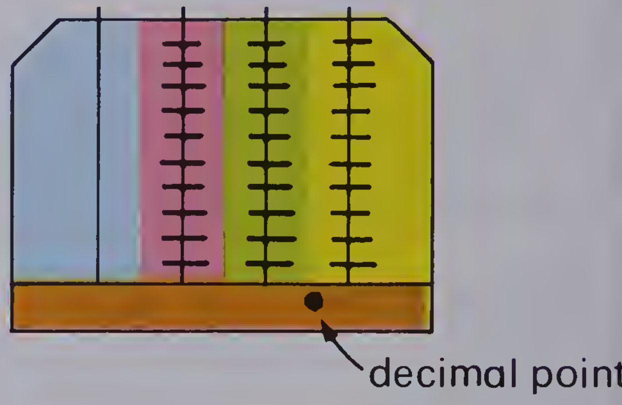
b)



d)

Explore Exchanging 10 for 1

10 yellow discs = 1 green disc
10 green discs = 1 red disc

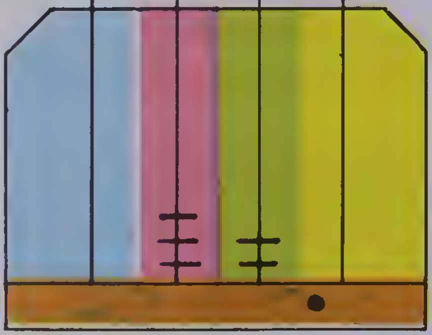


Complete the chart in your notebook.
Exchange 10 for 1.

4 red	? green	🟨
🟥	2 green	? yellow
🟥	? green	30 yellow
🟥	? green	40 yellow
? red	50 green	🟨
1 red	🟩	? yellow
? red	🟩	100 yellow
? red	🟩	200 yellow

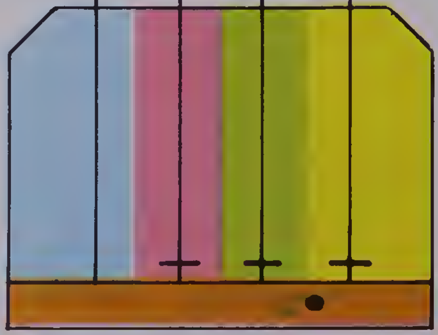
In this chart, 1 red = 10
1 green = 1
1 yellow = $\frac{1}{10}$ or 0.1
(We will use 0.1.)

Write the numeral for 3 red, 2 green



3 tens and 2
30 + 2
32

Write the numeral for 1 red, 1 green, 1 yellow



1 ten, 1, and 1 tenth
10 + 1 + 0.1
11.1

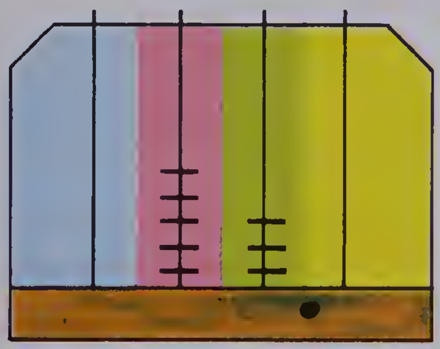
Write the numerals for
a) 4 red, 5 green
b) 2 green, 7 yellow
c) 6 red, 9 green, 2 yellow
d) 3 red, 2 green, 2 yellow
e) 7 red, 1 green, 5 yellow
f) 6 green, 3 yellow

In Action

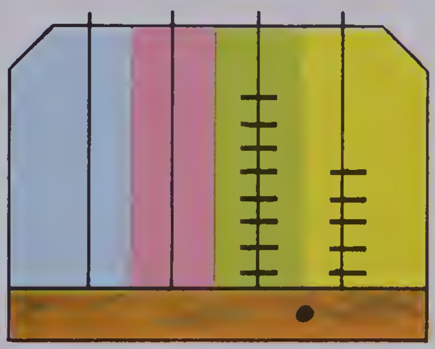
1. What is the number?
   - a) 2 green, 3 yellow
   - b) 3 red, 1 green, 2 yellow
   - c) 4 red, 0 green, 5 yellow
   - d) 6 red, 0 green, 0 yellow
   - e) 5 red
   - f) 5 red, 1 yellow
   - g) 1 red, 1 green, 1 yellow
   - h) 4 red, 3 green, 6 yellow
   - i) 9 green, 4 yellow
   - j) 2 red, 6 green, 7 yellow
   - k) 6 green
   - l) 7 green, 9 yellow
   - m) 8 red
   - n) 3 green, 8 yellow
   - o) 2 red, 5 yellow

2. What is the number?

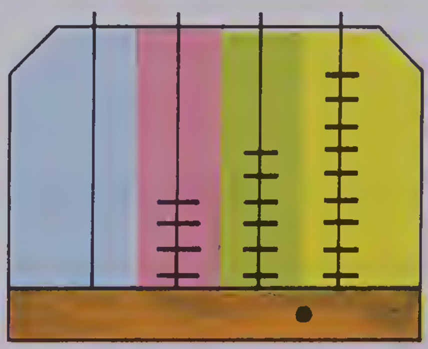
a)

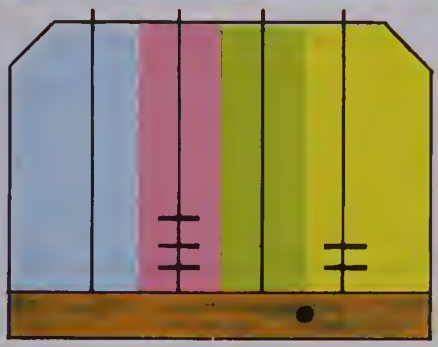


b)

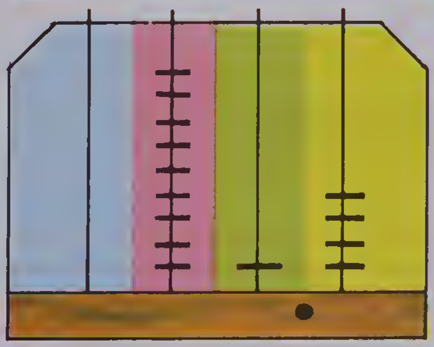


c)

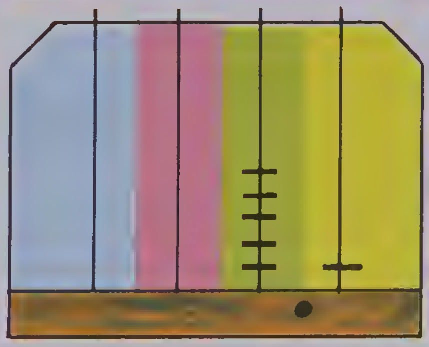




d)



e)

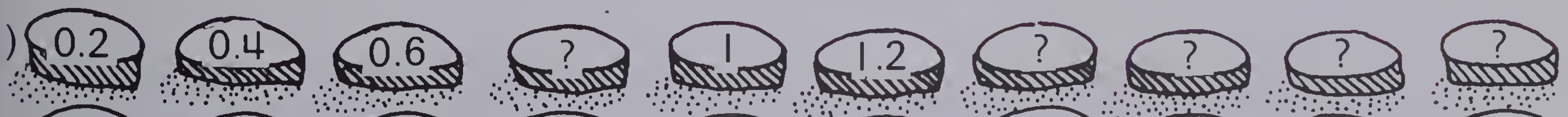


f)

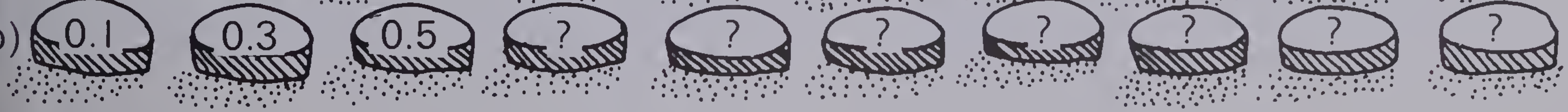
3. Draw simple pictures of an abacus.
   Show the numbers.
   - a) 47
   - b) 61
   - c) 2.3
   - d) 5.7
   - e) 32.1
   - f) 49.2
   - g) 54.7
   - h) 96.4
   - i) 88.5
   - j) 11.1

4. Continue the patterns.

a)

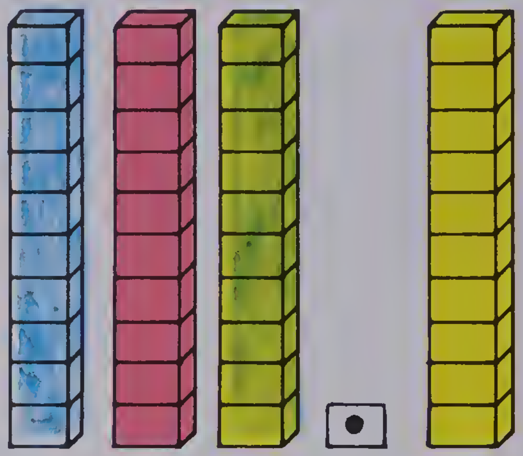


b)



Exchanging 10 for 1

10 yellow cubes = 1 green cube
10 green cubes = 1 red cube
10 red cubes = 1 blue cube



Complete the chart in your notebook.

Exchange 10 for 1.

🟦	🟥	4 green	? yellow
🟦	2 red	? green	🟨
3 blue	? red	🟩	🟨
🟦	1 red	? green	? yellow
1 blue	? red	? green	🟨
1 blue	? red	? green	? yellow

In this chart,
1 blue = 100
1 red = 10
1 green = 1
1 yellow = 0.1

Write the numeral for
2 blue, 1 red, 3 green
2 hundreds, 1 ten, and 3
200 + 10 + 3
213

Write the numeral for
4 blue, 2 red, 1 green, 5 yellow
4 hundreds, 2 tens, 1, and 5 tenths
400 + 20 + 1 + 0.5
421.5

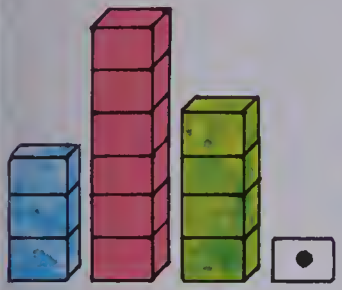
Write the numerals for

a) 3 blue, 3 red, 3 green
b) 5 blue, 0 red, 0 green, 5 yellow
c) 4 blue, 2 red, 5 green, 3 yellow
d) 1 red, 4 green, 2 yellow
e) 4 blue, 0 red, 1 green, 1 yellow
f) 8 red, 8 green, 8 yellow

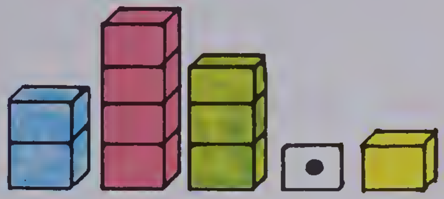
In Action

1. What is the number?

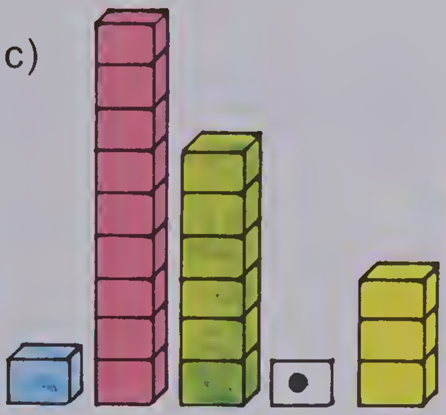
a)



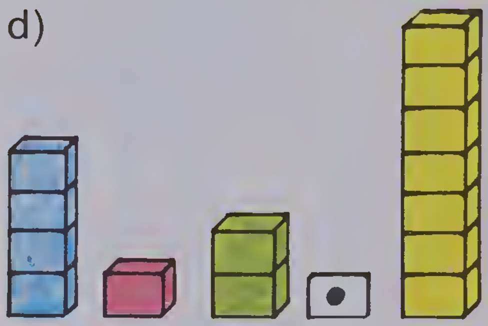
b)



c)



d)



2. What is the number?

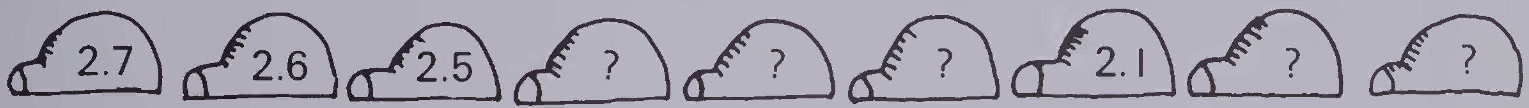
a) 5 hundreds, 7 tens, and 8
b) 8 hundreds, 0 tens, and 3
c) 2 hundreds, 4 tens, 1, and 3 tenths
d) 4 hundreds, 2 tens, 6, and 5 tenths
e) 7 hundreds
f) 9 hundreds and 3 tens
g) 1 ten, 0, and 1 tenth
h) 6 hundreds, 5 tens, and 4
i) 3 hundreds, 9 tens, 2, and 2 tenths
j) 1 hundred, 6 tens, 5, and 4 tenths

3. Use blue, red, green, and yellow cubes and a decimal card.
Show the numbers.

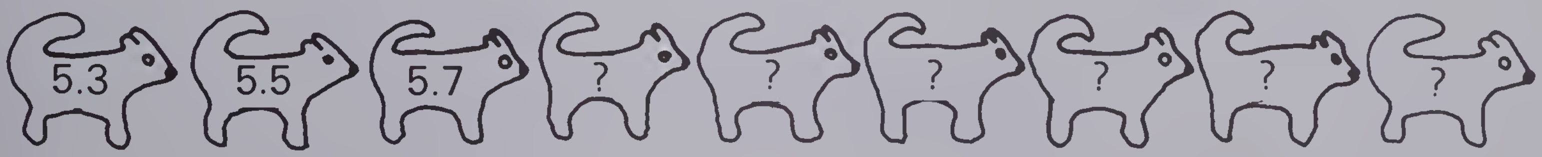
a) 526
b) 279
c) 143.6
d) 305.4
e) 937.2
f) 652.7
g) 463.5
h) 898.3
i) 784.6
j) 111.1

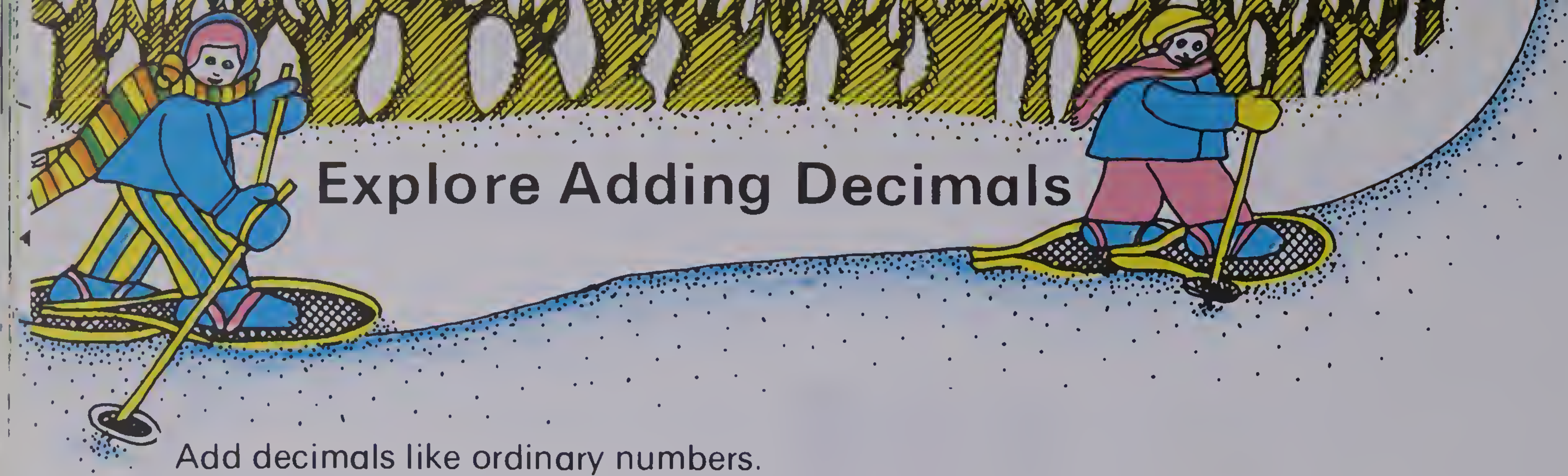
4. Continue the patterns.

a)



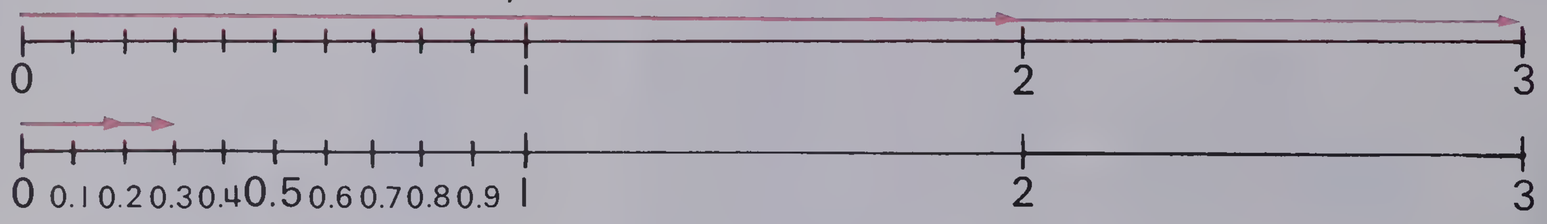
b)





Explore Adding Decimals

Add decimals like ordinary numbers.


0
1
2
3
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
2
3

2 + 1 = 3

0.2+0.1=0.

When you add decimals, keep the decimal points in line.

0.1
0.2
0.4
0.7

Think 6, 7
Write 0.7

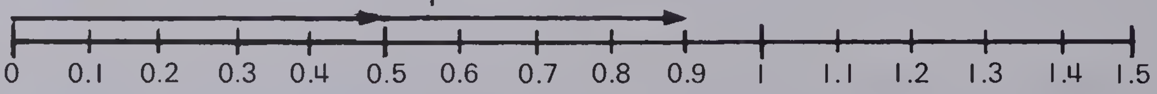
0.1
0.3
0.2
0.2
0.8

Think 4, 7, 8
Write 0.8

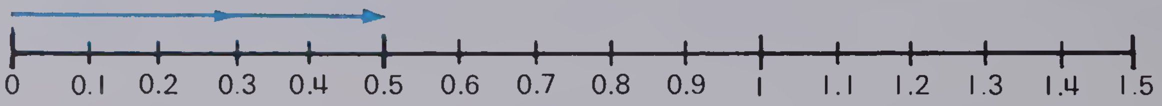
In Action

1. Write an addition sentence for each picture.

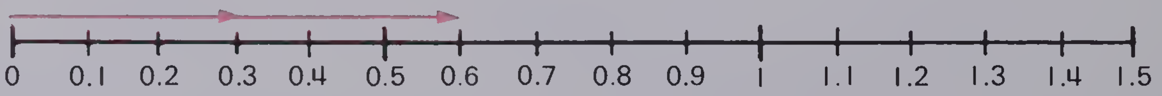
a)


0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5

b)


0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5

c)


0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5

2. Add.

0.1	0.2	0.1	0.3	0.4	0.2	0.2	0.3	0.2	0.3
0.2	0.1	0.2	0.1	0.2	0.3	0.1	0.1	0.2	0.2
0.1	0.2	0.3	0.3	0.2	0.4	0.2	0.1	0.2	0.1
						0.1	0.2	0.2	0.3

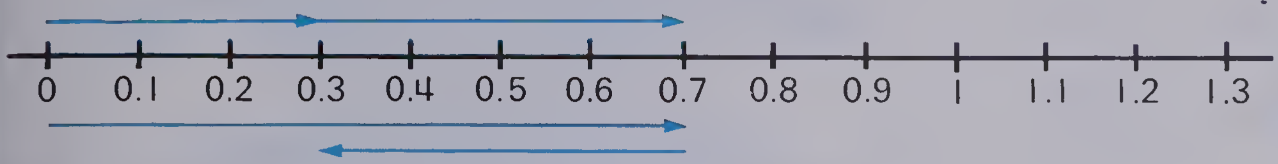
Think
3, 4

3. Add the decimal number pairs.

a) (0.4,0.3)
b) (0.7,0.2)
c) (0.4,0.4)
d) (0.6,0.1)
e) (0.6,0.3)
f) (0.1,0.7)
g) (0.5,0.1)
h) (0.2,0.5)

Explore Subtracting Decimals

Add and subtract decimals like ordinary numbers.


0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3

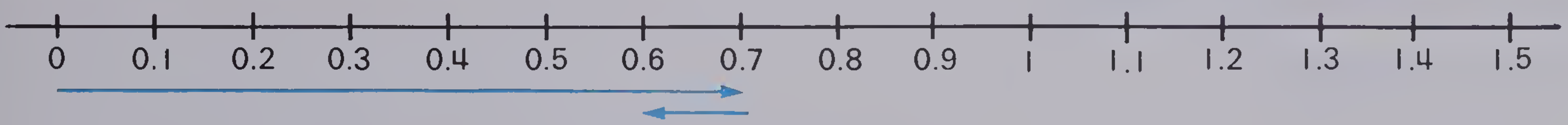
0.3 + 0.4 = 0.7 $$\begin{array}{r}0.3\\0.4\\\hline 0.7\end{array}$$

0.7 − 0.4 = 0.3 $$\begin{array}{r}0.7\\0.4\\\hline 0.3\end{array}$$

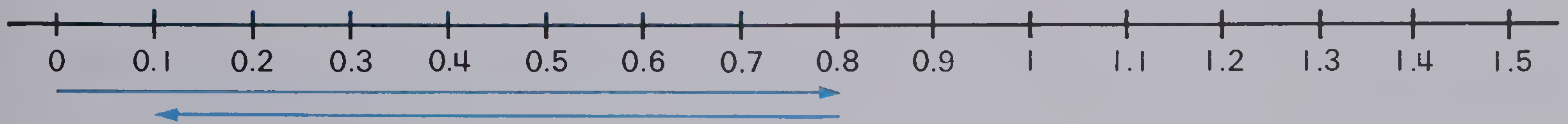
In Action

1. Write a subtraction sentence for each picture.

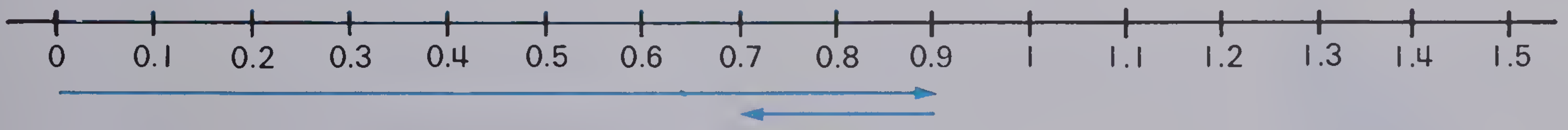
a)


0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5

b)


0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5

c)


0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5

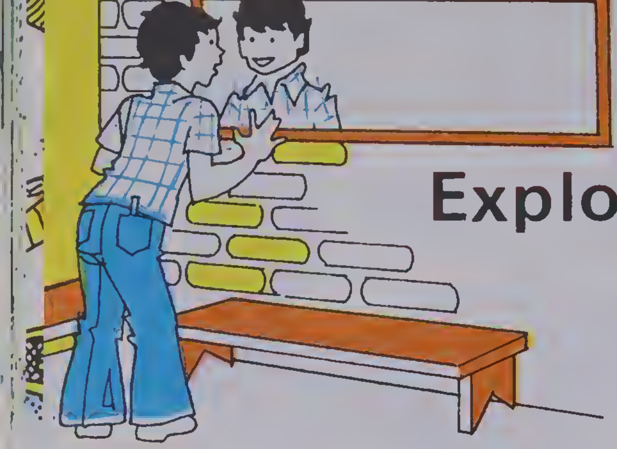
2. Subtract the decimal number pairs.

a) (0.8,0.3)
b) (0.9,0.2)
c) (0.7,0.1)
d) (0.5,0.4)
e) (0.9,0.5)
f) (0.8,0.2)
g) (0.8,0.4)
h) (0.7,0.2)

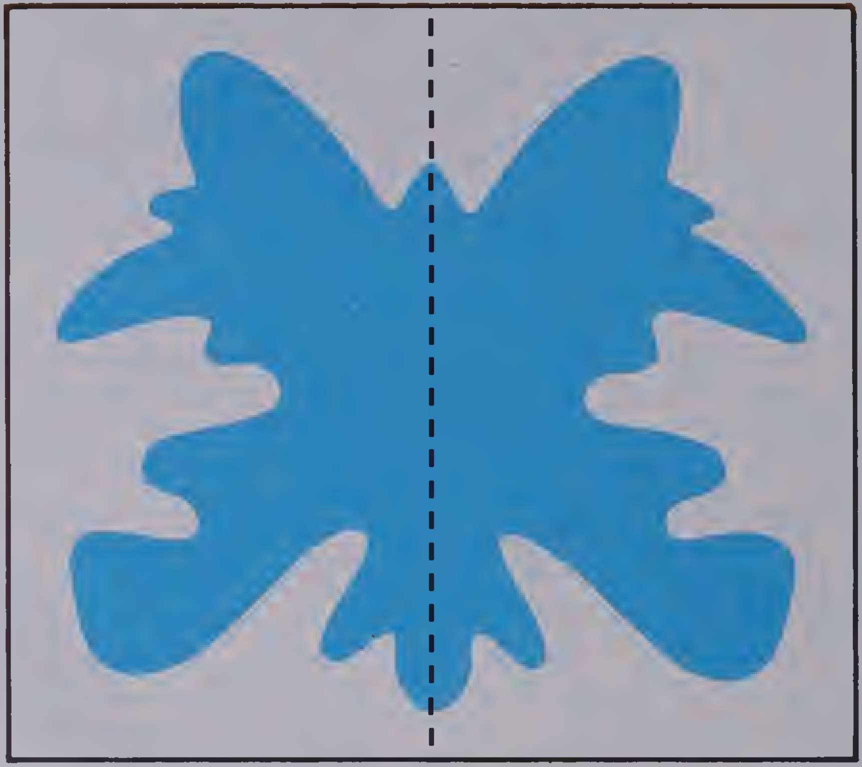
3. Subtract.

$$\begin{array}{r}0.8\\0.5\\\hline\end{array}\quad\begin{array}{r}0.3\\0.3\\\hline\end{array}\quad\begin{array}{r}0.5\\0.2\\\hline\end{array}\quad\begin{array}{r}0.7\\0.5\\\hline\end{array}\quad\begin{array}{r}0.9\\0.6\\\hline\end{array}\quad\begin{array}{r}0.6\\0.2\\\hline\end{array}\quad\begin{array}{r}0.9\\0.8\\\hline\end{array}\quad\begin{array}{r}0.2\\0.1\\\hline\end{array}\quad\begin{array}{r}0.5\\0.3\\\hline\end{array}\quad\begin{array}{r}0.9\\0.3\\\hline\end{array}\quad\begin{array}{r}0.8\\0.6\\\hline\end{array}\quad\begin{array}{r}0.7\\0.7\\\hline\end{array}$$

4. Work with someone in your group.
Write an addition or subtraction question, using decimals.
Your partner writes the answer.



Explore Images



Fold a piece of paper in half.
Open the paper.
Now drop paint onto $\frac{1}{2}$ of the paper.
Fold the paper again.

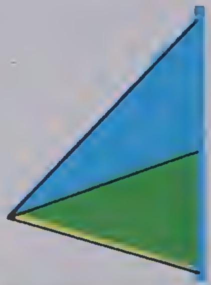
Open the paper once more.
What do you see?
What is special about your picture?

Try this again with another piece of paper.

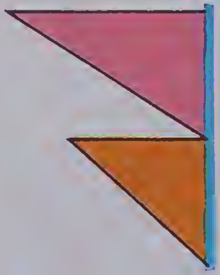
In Action

Trace the pictures.
Complete the pictures to make them the same on both sides of the blue line.

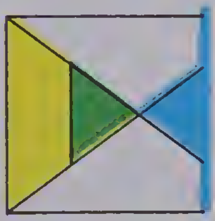
1.



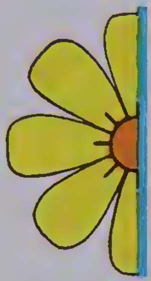
2.



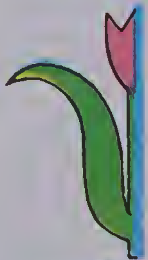
3.



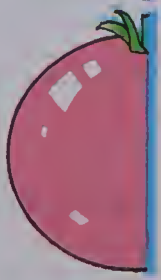
4.



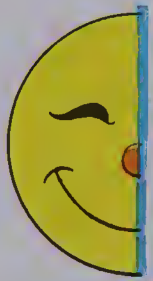
5.



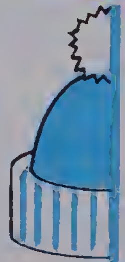
6.



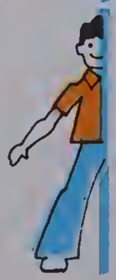
7.

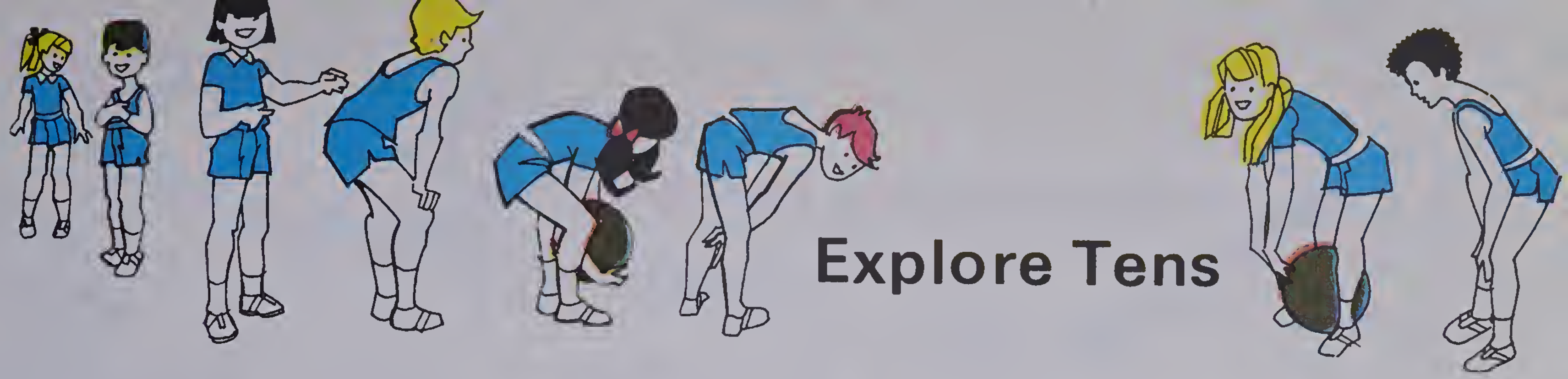


8.

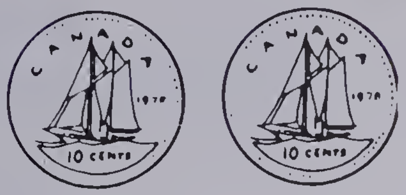


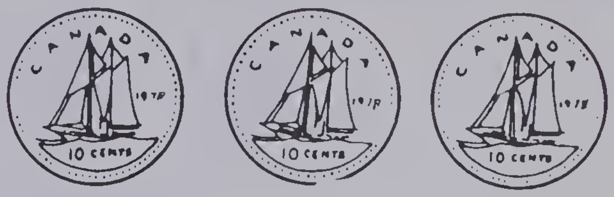
9.





Explore Tens





How many tens?
How many cents?

2 tens and 3 tens are 5 tens
$20 + 30 = 50$

Use 10 dimes. Make 2 sets.
How many tens are in each set? How many tens are there altogether?
Write the addition sentence.

Move some dimes away from a set. How many tens are left?
Write the subtraction sentence.

In Action

1. a) Start at 10. Count to 100 by tens.
   b) Start at 100. Count back to 0 by tens.

2. Colin bought a puzzle that cost 40¢.
   He gave the cashier 50¢.
   How much change did he get?

3. Add.

20	20	40	80	40
70	60	50	10	40

4. Subtract.

70	90	80	100	60
40	50	20	70	30

5. Allysa has 30¢ and Barbara has 60¢.
   How much do the girls have altogether?

6. There were 20 girls and 10 boys in the playroom.
   How many children were there altogether?

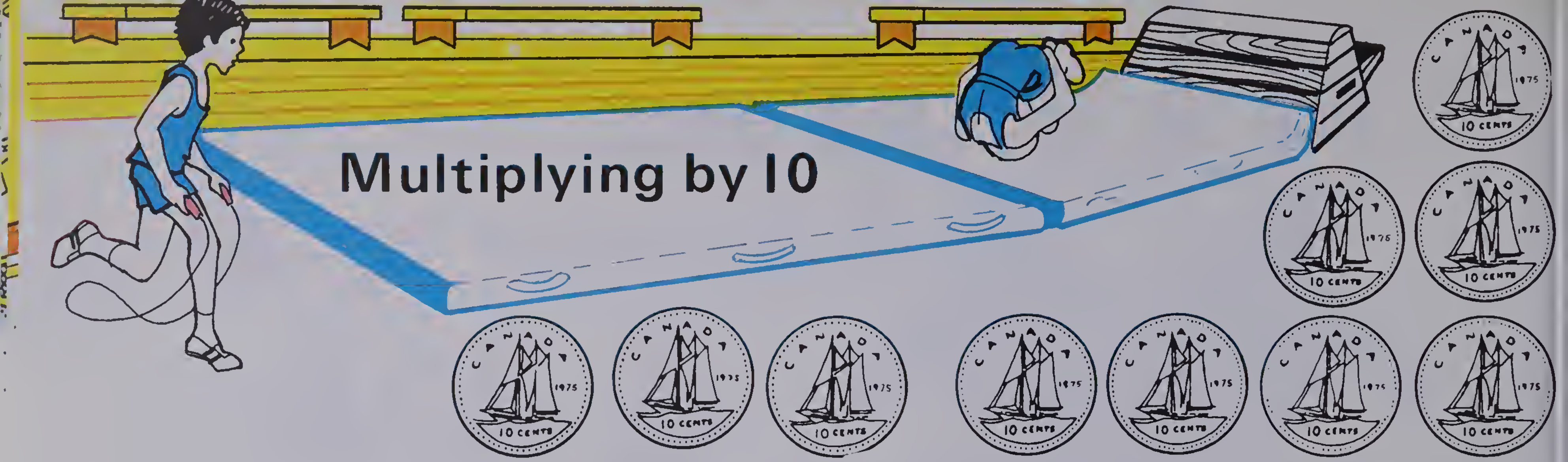
7. Add.

10	20	30	40
20	30	10	10
10	20	20	20

Think
30, 40

8. a) Start at 11. Count by tens to 101.
   b) Start at 101. Count back to 1 by tens.

Multiplying by 10



3 dimes
How much money?
3 dimes make 30¢.
$3 \times 10 = 30$

7 dimes
How much money?
7 dimes make ?
$7 \times 10 = ?$

In Action

1. Use dimes to help you find the answers.

   a) $4 \times 10 = ?$
   b) $8 \times 10 = ?$
   c) $9 \times 10 = ?$
   d) $2 \times 10 = ?$
   e) $1 \times 10 = ?$
   f) $0 \times 10 = ?$
   g) $3 \times 10 = ?$
   h) $7 \times 10 = ?$

2. Solve.

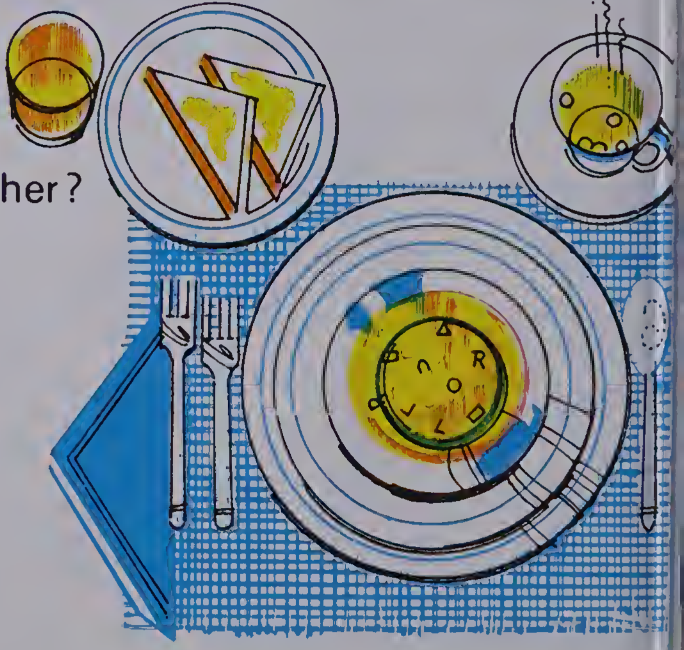
   a) $5 \times 10 = 10 \times n$
   $n = ?$
   b) $6 \times 10 = 10 \times k$
   $k = ?$
   c) $4 \times 10 = 10 \times a$
   $a = ?$

3. Complete.

   a) $10 \times 9 = ?$
   b) $10 \times 6 = ?$
   c) $10 \times 8 = ?$
   d) $10 \times 2 = ?$
   e) $10 \times 7 = ?$
   f) $10 \times 1 = ?$
   g) $10 \times 5 = ?$
   h) $10 \times 3 = ?$

4. The table is set for 10 people.

   a) How many forks are there?
   b) How many knives, forks, and spoons are there altogether?



5. a) You exchange 10 dimes.
   What coins or bills could you get?
   b) What is 10×10?

6. A playroom is shaped like a rectangle.
   There are 10 children playing in each corner of the room.
   How many children are in the room?

Dividing by 10

You have 70¢ in dimes.
How many dimes do you have?
Write the division sentence.

70 ÷ 10 = ?

Complete the chart in your notebook.
Check your work using dimes.

Amount	Number of Dimes	Division Sentence
80¢		80 ÷ 10 = ?
	4	
60¢		
	1	
50¢		
	2	
90¢		
$1.00		

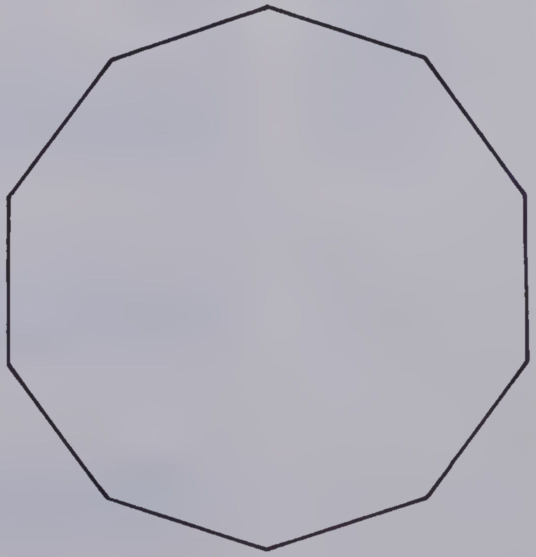
In Action

1. Complete the chart in your notebook.

Multiplication Sentence	Division Sentence
10 × 4 = 40	40 ÷ 10 = ?
10 × 9 = ?	90 ÷ 10 = ?
10 × 3 = ?	
10 × 7 = ?	
10 × 2 = ?	
10 × 10 = ?	100 ÷ 10 = ?

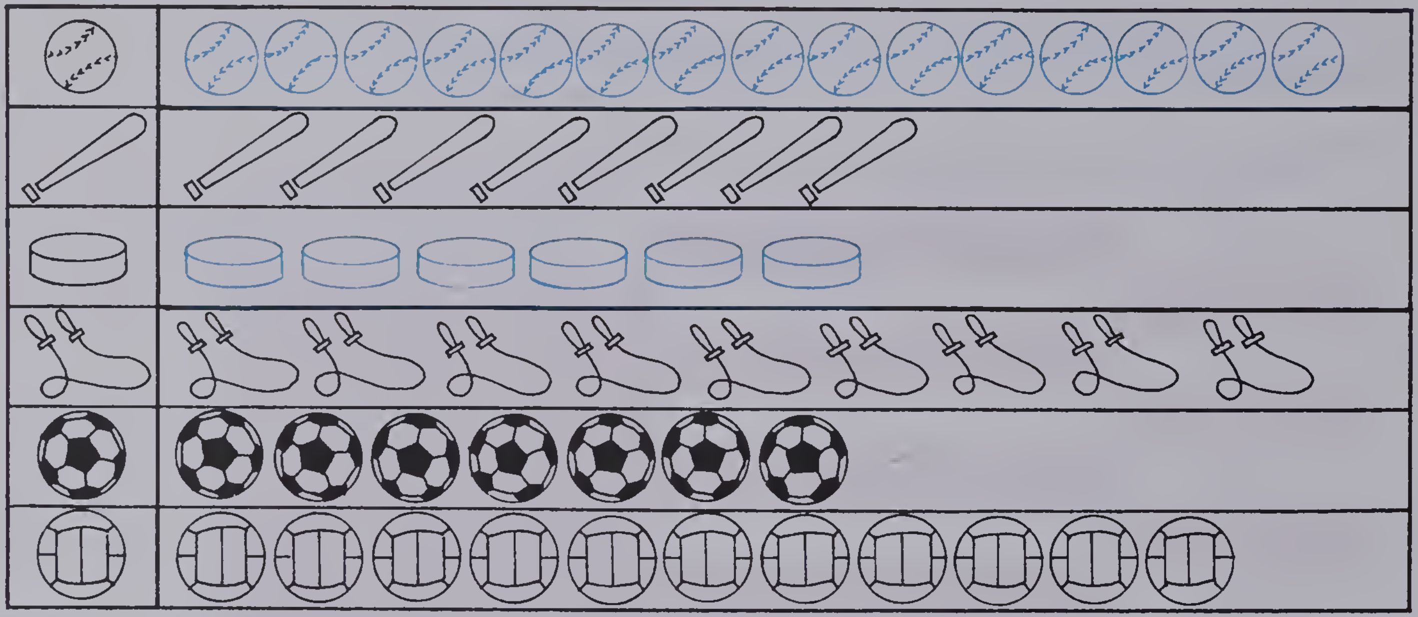
2. There are 30 hockey players.
Each team has 10 players.
How many teams are there?

3. There are 5 decagons.
How many sides are there?

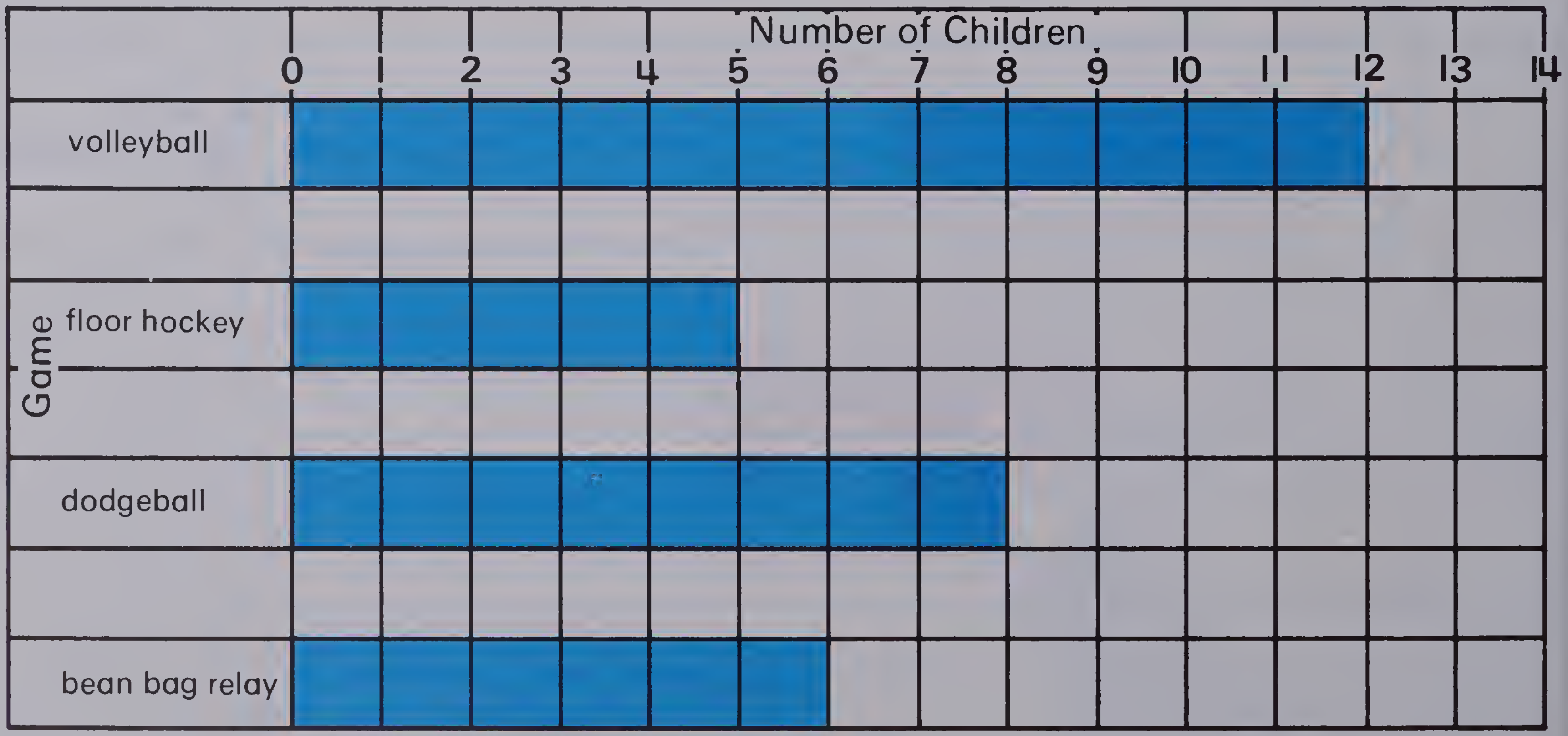


Graphs

You can make a graph of the playroom equipment in your school. Count each type of equipment. Draw pictures to make a graph.



Make a graph of your classmates' favourite games. How many children like each game best? Colour paper marked into 1 cm squares to show how many.

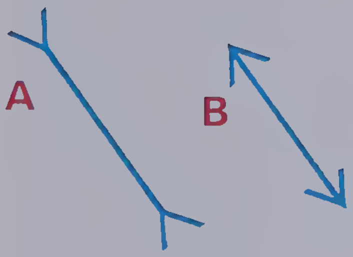


Byway

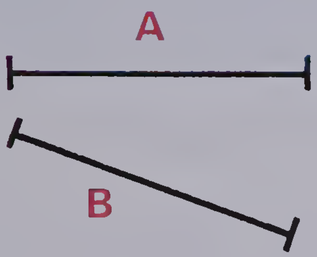
Do Your Eyes Play Tricks?

Do you think I line segment or picture is longer than the other?
Measure each with a ruler to see if you were correct.
Write the measurements like this: A = 4.5 cm

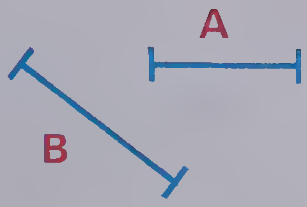
1.



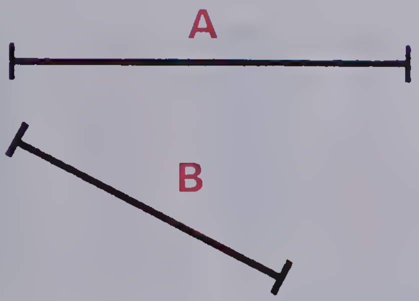
2.



3.



4.



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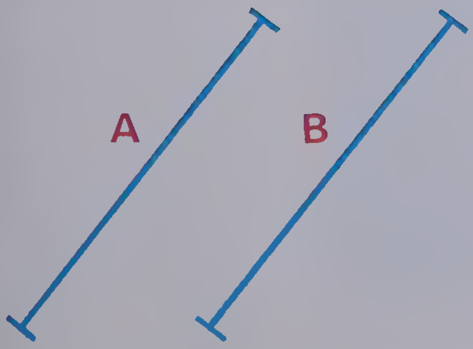

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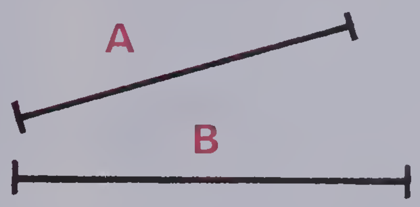

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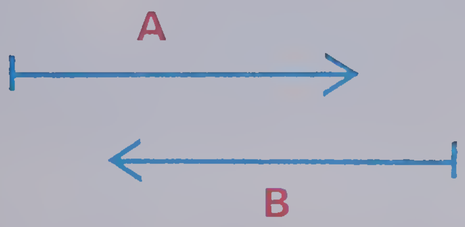
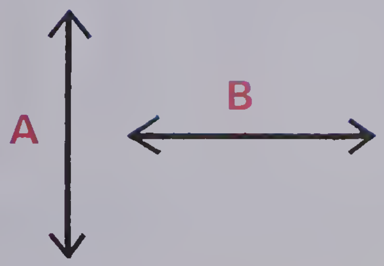
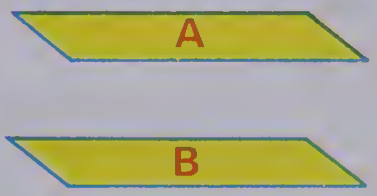


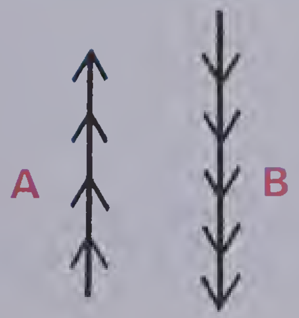
8.



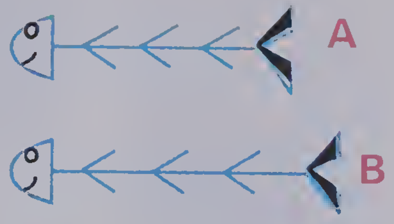
9.



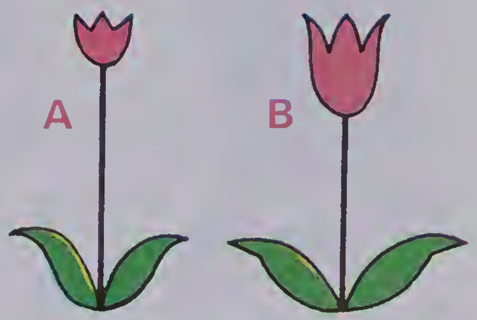
10.



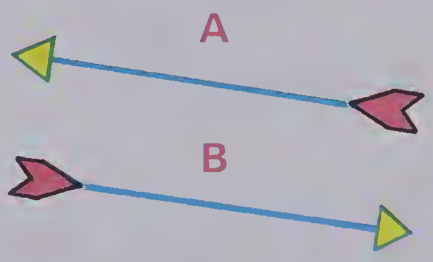
11.



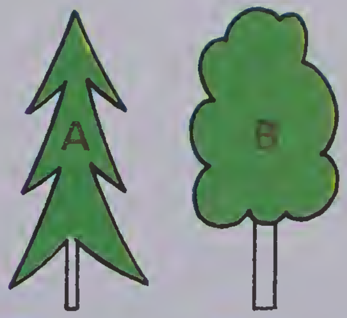
12.



13.



14.



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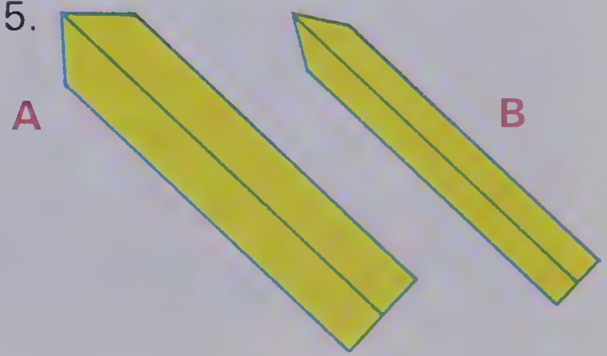
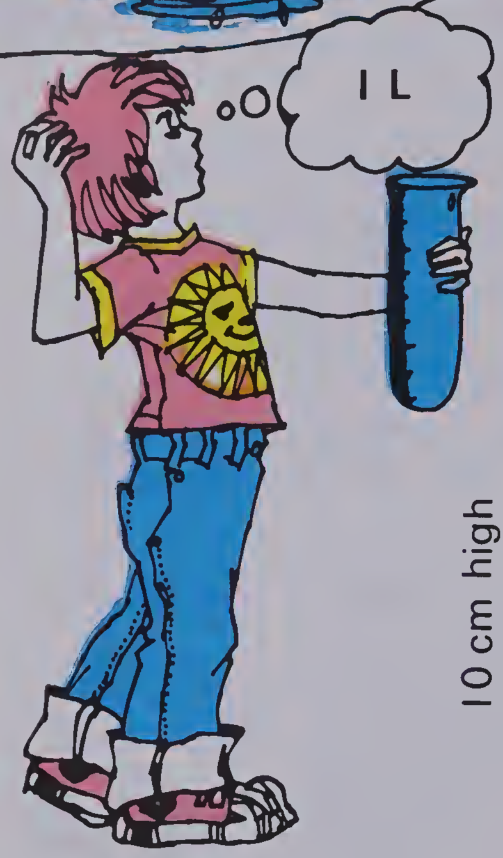
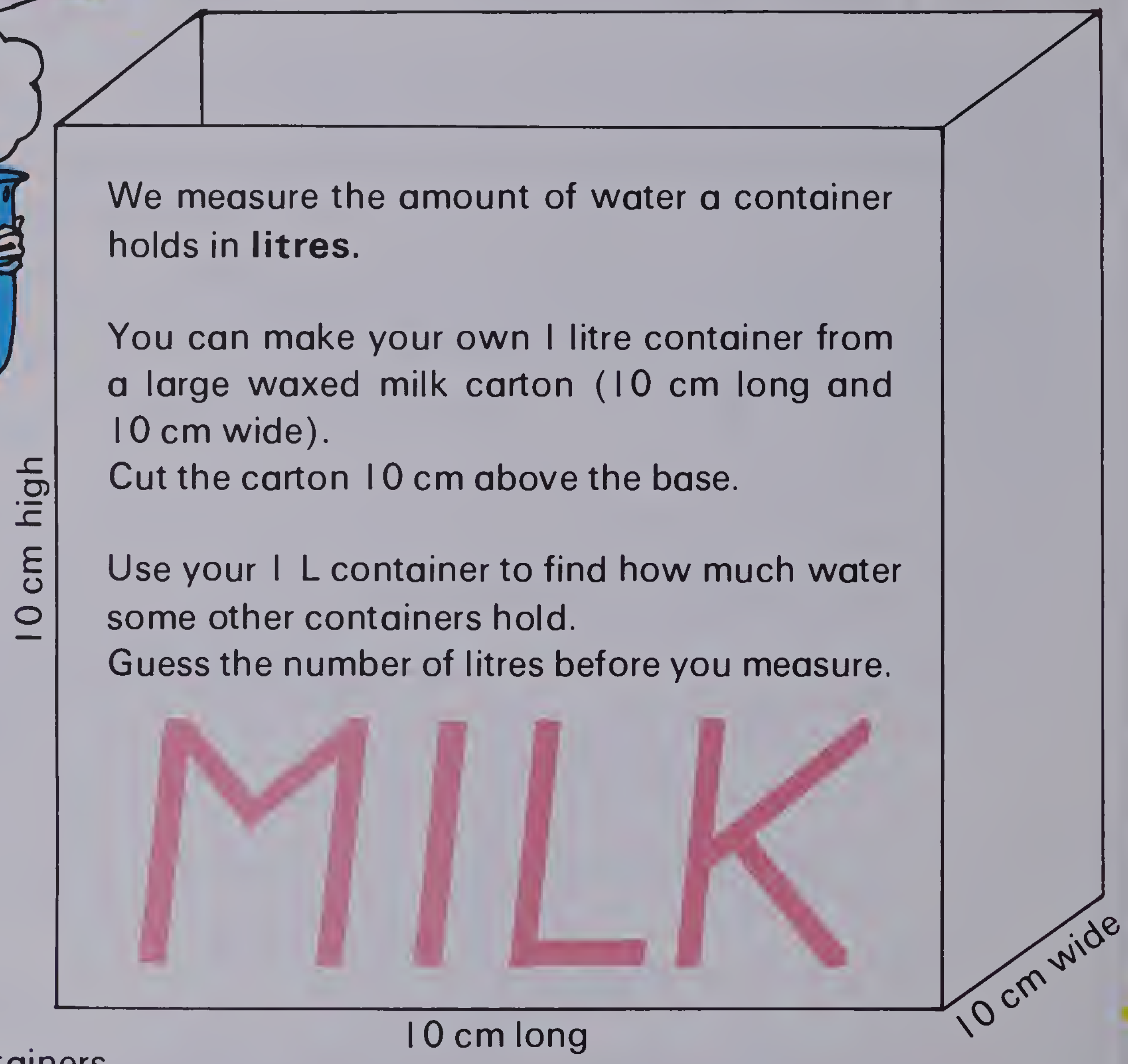


Explore the Litre





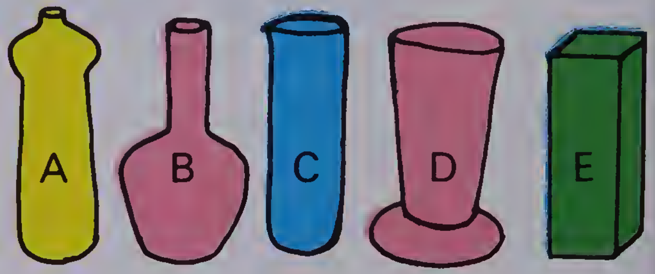
We measure the amount of water a container holds in **litres.**

You can make your own 1 litre container from a large waxed milk carton (10 cm long and 10 cm wide).
Cut the carton 10 cm above the base.

Use your 1 L container to find how much water some other containers hold.
Guess the number of litres before you measure.

In Action

1. Choose 5 different containers.
   Which do you think holds the most water?
   Which do you think holds the least water?
   Line up the containers in order, from the one which holds the most to the one which holds the least.
   Now check your guess using your 1 L container.
   Line up the containers in the correct order.

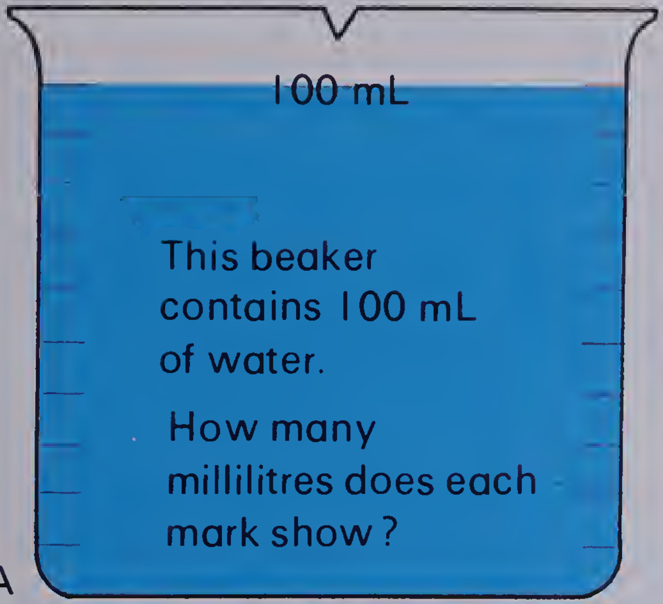


2. Ellen's family drinks 8 L of milk every week.
   Frank's family drinks 5 L and Greta's family drinks 7 L.
   How many litres of milk do the families drink every week?

3. Howard wanted to buy 10 L of milk for the class party.
   The store sold milk in 2 L cartons.
   How many cartons did Howard need?

Millilitres

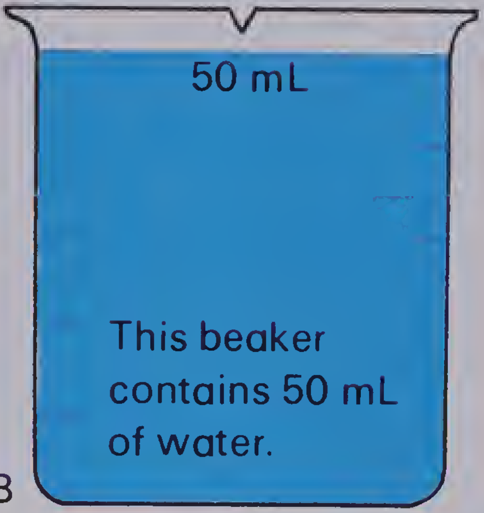
We measure small amounts of water in millilitres.



A

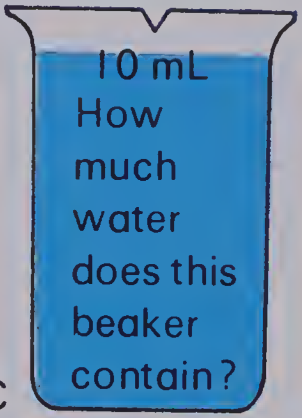
This beaker contains 100 mL of water.

How many millilitres does each mark show?



B

This beaker contains 50 mL of water.



C

How much water does this beaker contain?

How many times would you have to empty beaker C into beaker A to give 100 mL?
to give 70 mL?
How many times would you have to empty beaker B into beaker A to give 100 mL?
How many times would you have to empty beaker C into beaker B to give 50 mL?
to give 30 mL?

In Action

Use 100 mL and 10 mL beakers.
Copy the chart into your notebook.
How many millilitres of water does each container hold?
Guess, then measure.

Container	About how many millilitres? (Guess)	About how many millilitres? (Measurement)
small glass		
large glass		
coffee cup		
soup bowl		
pop bottle		
milk carton		

Degrees Celsius

A clinical thermometer measures body temperature.

Work with 5 other classmates.
Find your body temperatures.
Make sure you wash the thermometer before you take a new temperature.
Write the temperatures like this.

37 °C

What do you think another classmate's body temperature would be?

1. Shake down the liquid.
2. Put the thermometer under your tongue. Don't bite.
3. Keep your mouth closed.
4. Wait 1 minute.
5. Take out the thermometer.
6. Read the temperature.

In Action

1. a) What is the temperature inside your classroom?
   b) What is the temperature outdoors?
   c) Which is warmer? How much warmer?

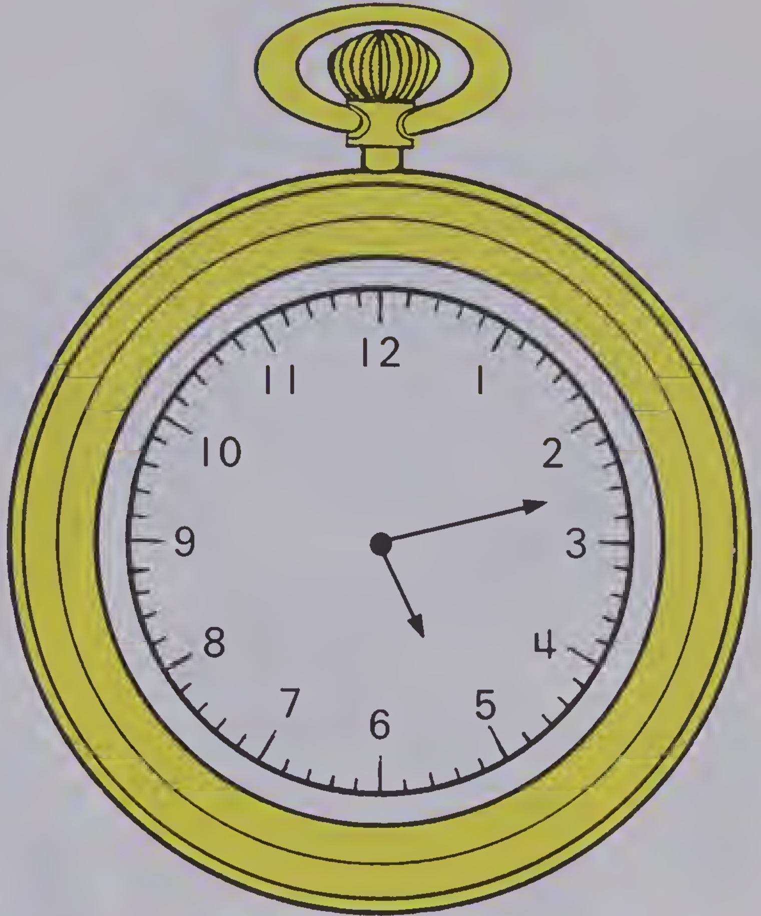
2. Use a dipping thermometer to find these temperatures.

   a) a glass of ice cubes,
   b) a glass of cold water,
   c) a glass of cold water left 20 minutes in the sun,
   d) a glass of water left 1 hour in the sun,
   e) a glass of water left 1 hour in the shade,
   f) a glass of warm water from the tap.

3. Study the weather for 2 weeks. (Weekends, too!)
   Write down the temperature at 9:00 in the morning and 2:00 in the afternoon.
   Is it sunny, cloudy, windy, snowy?

Do you remember?

Explore Minutes



What do the little black lines stand for?
How many lines are there from one numeral to the next?
(Remember not to count the starting line.)

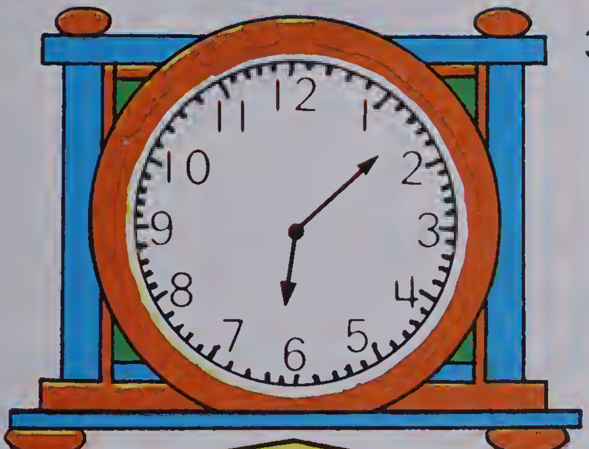
How many minutes are there in 1 hour?
Count by fives, if you can't remember.

Where is the hour hand?
Where is the minute hand?
Through how many minutes has it moved from 12?
What time is it? 5:13

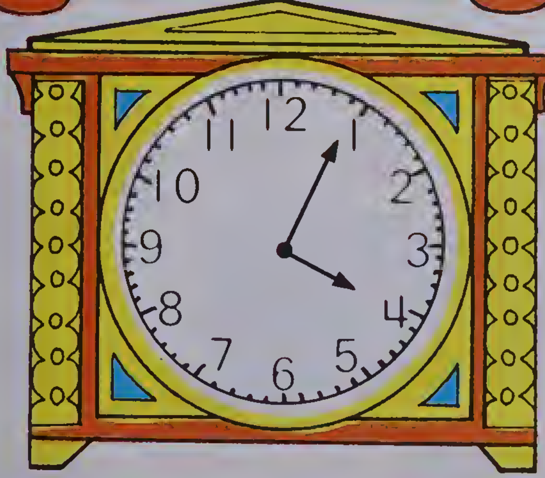
In Action

What time is it?

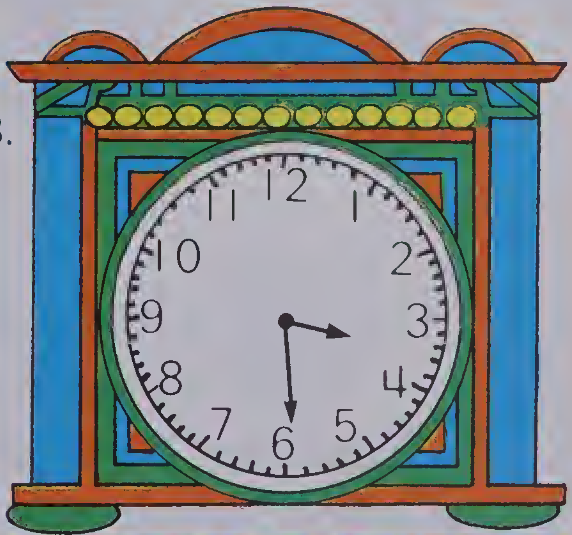
1\.



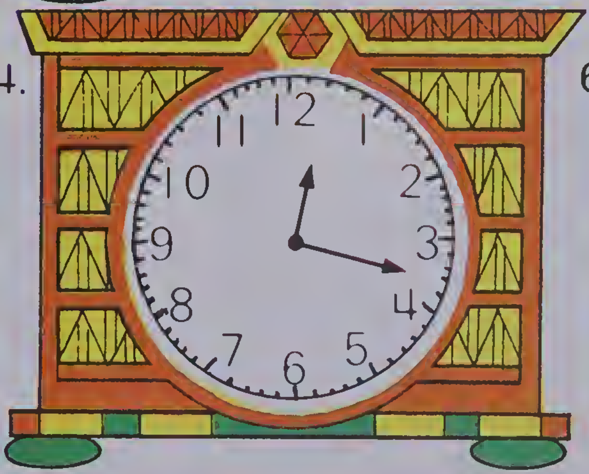
2\.



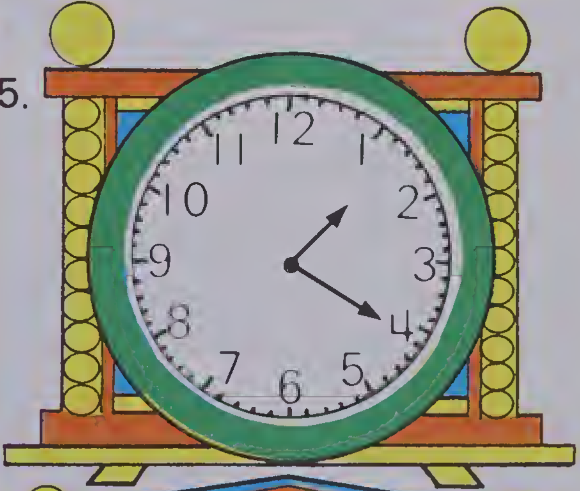
3\.



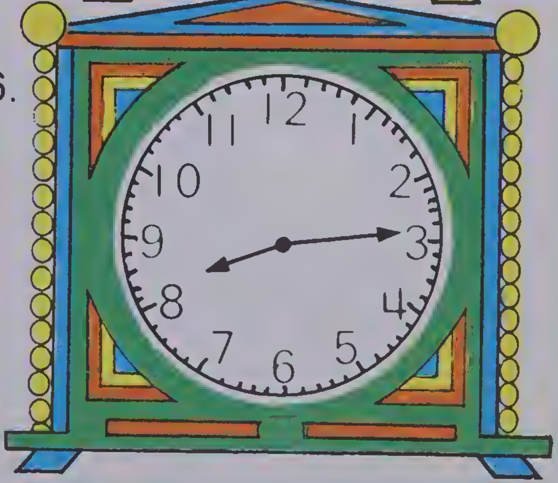
4\.



5\.



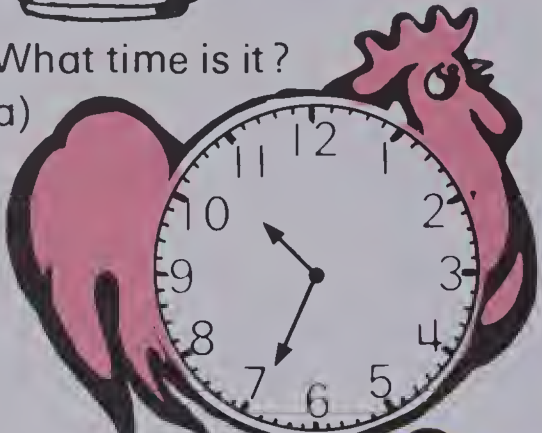
6\.



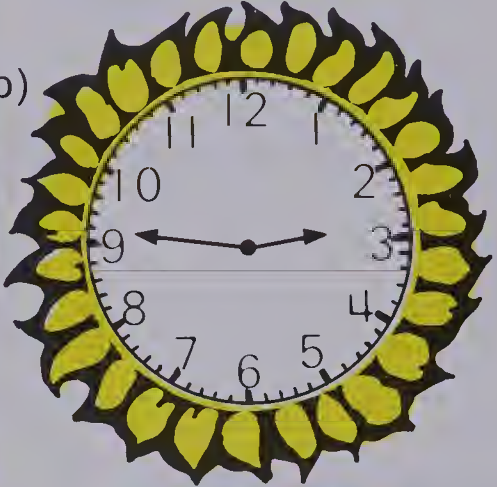
In Action

1. What time is it?

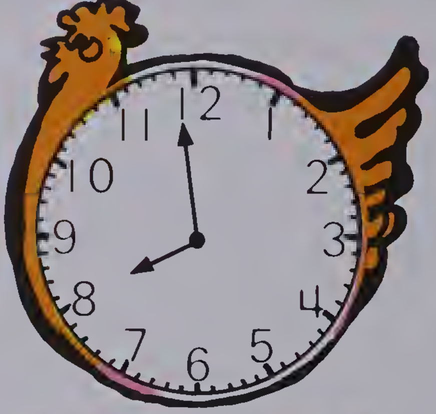
a)



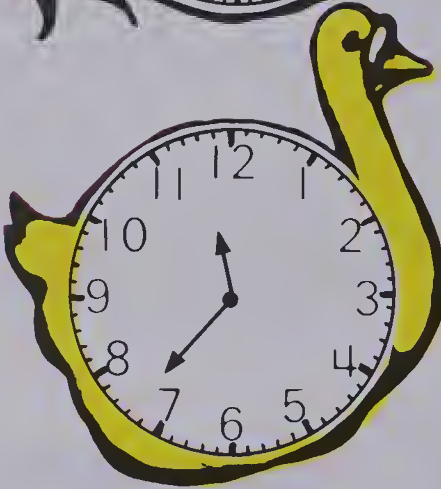
b)



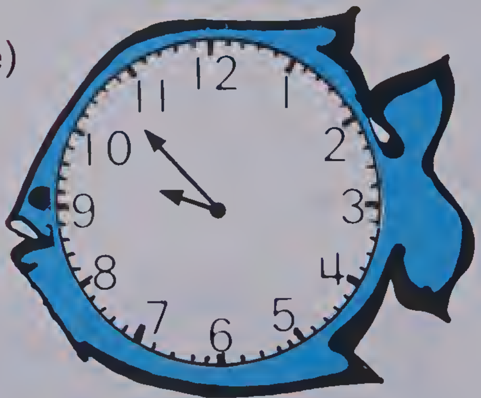
c)



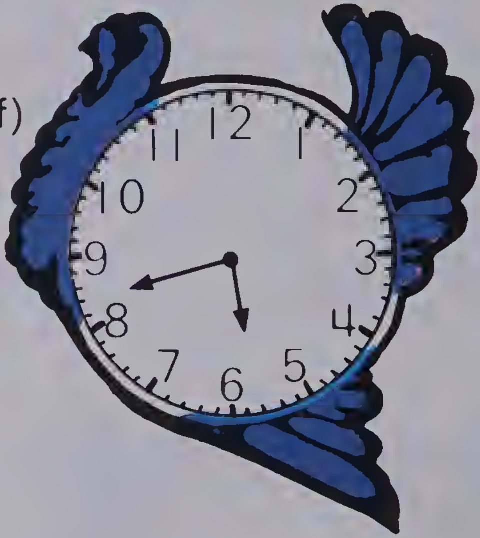
d)



e)



f)



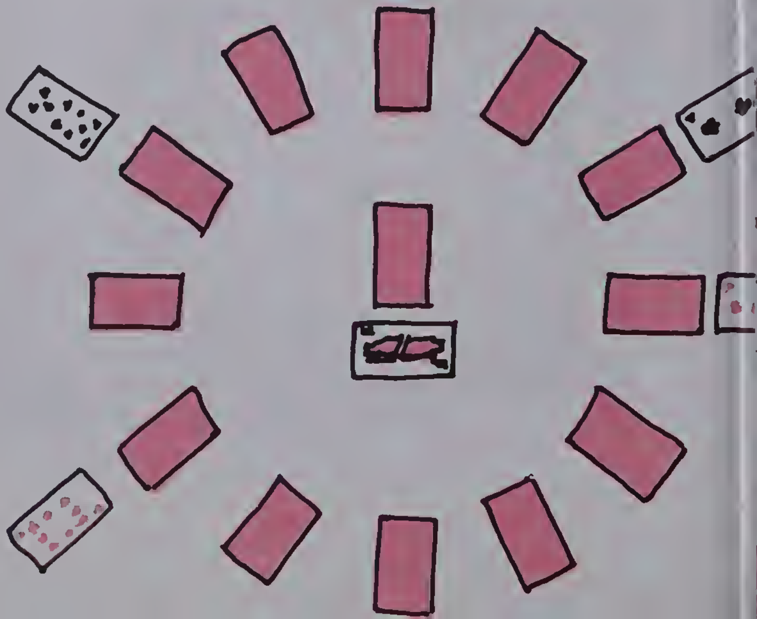
2. Write the times.
   Use a clock to help you.

a) 10 minutes later than 2:19	e) 15 minutes earlier than 6:52
b) 25 minutes later than 7:03	f) 13 minutes later than 11:47
c) 10 minutes earlier than 4:36	g) 8 minutes earlier than 3:51
d) 7 minutes later than 10:24	h) 18 minutes later than 12:09

3. Find out how to play "Clock Solitaire".

   Remember: J stands for 11,
   Q stands for 12,
   K stands for the clock hands.

   Play the game.
   Take the first card from the centre.
   Place it outside the circle to show the correct hour.
   Draw the next card from the pile for that hour.
   Did you finish the clock before you
   found all the Kings?



Time Passes

1. When Giles got out of bed, he looked at the clock.
   The hour hand was pointing past 7.
   The minute hand was pointing to 5.
   What time was it?

2. Leah got to school at 8:45.
   30 minutes later, she was reading a story.
   At what time was she reading?

3. At 11:45, Max was finger painting.
   25 minutes earlier, he had begun writing a poem.
   At what time had he begun writing the poem?

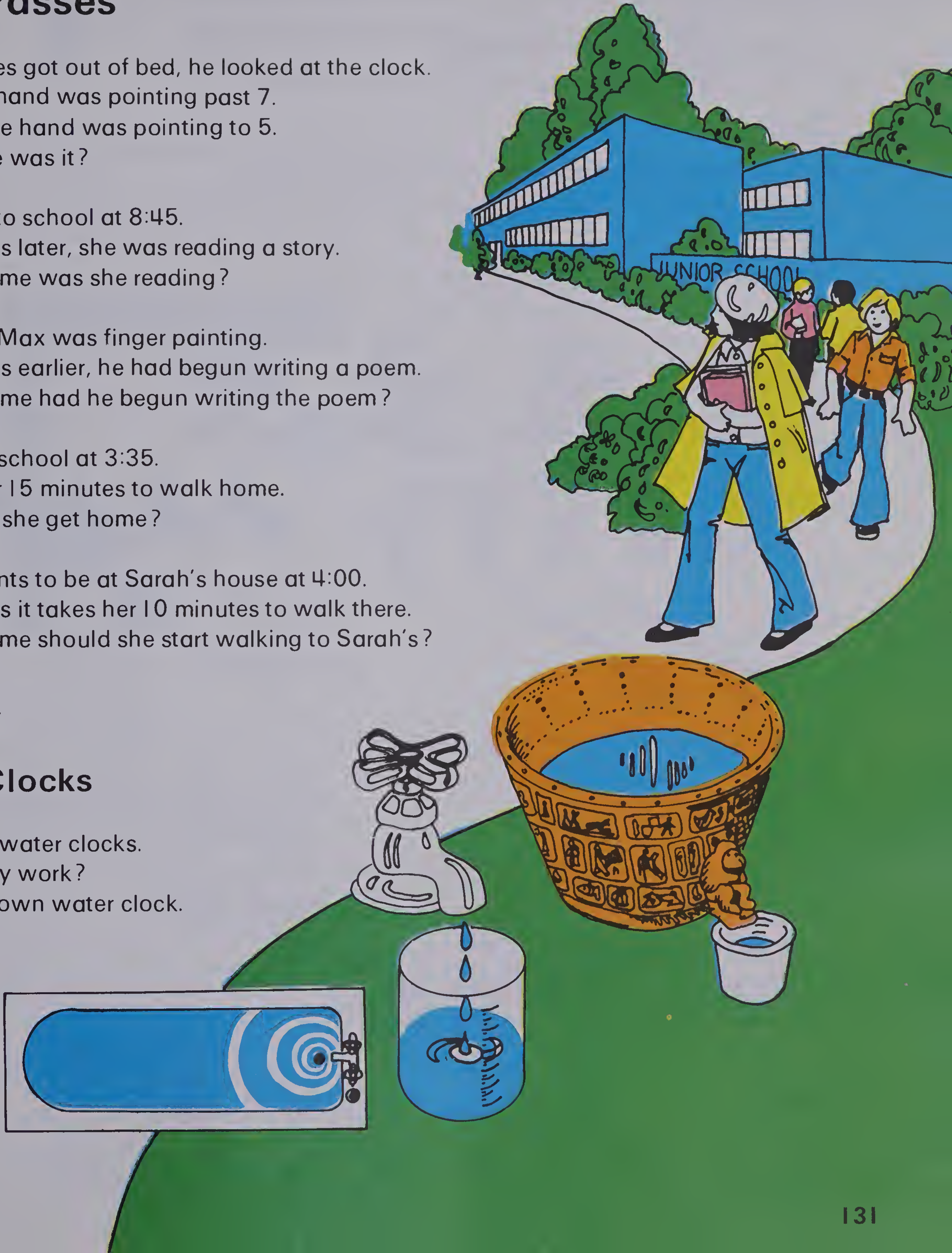
4. Nilou left school at 3:35.
   It took her 15 minutes to walk home.
   When did she get home?

5. Paula wants to be at Sarah's house at 4:00.
   She knows it takes her 10 minutes to walk there.
   At what time should she start walking to Sarah's?

Byway

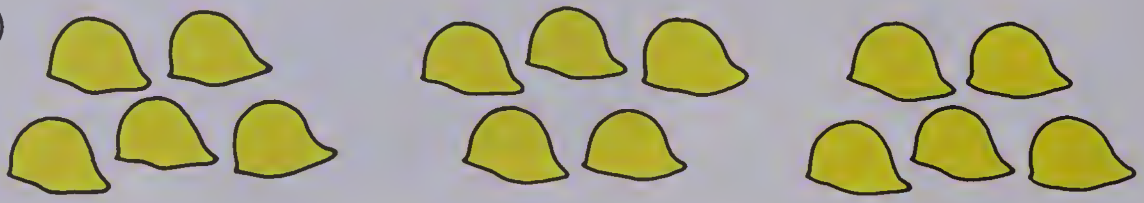
Water Clocks

Read about water clocks.
How did they work?
Create your own water clock.

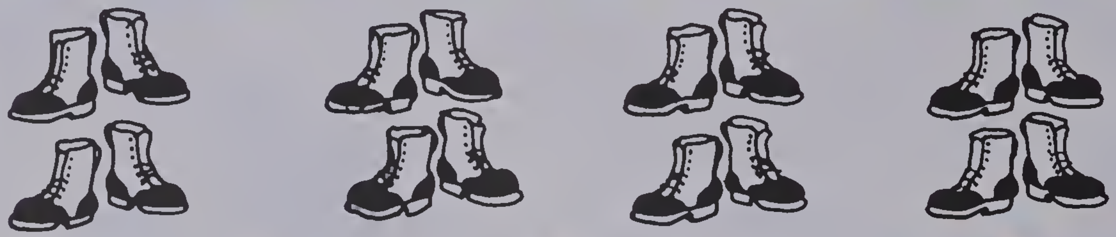


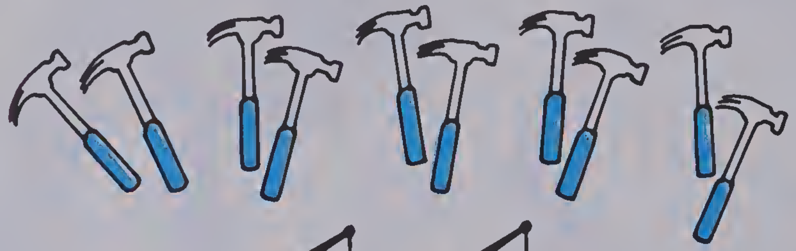
Retrace Your Steps

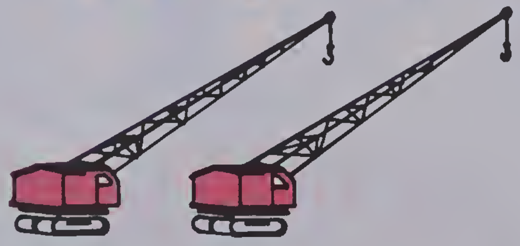
1. Write an addition sentence and a multiplication sentence.

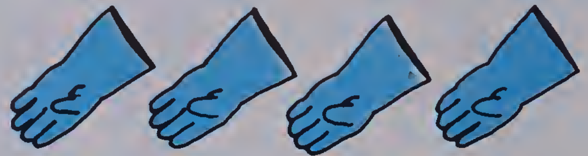
a) 

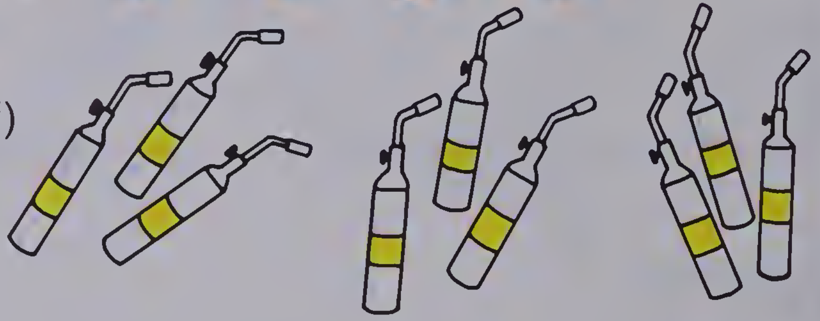
5 + 5 + 5 = ?
3 × 5 = ?

b) 

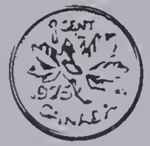
c) 

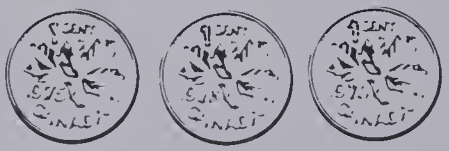
d) 

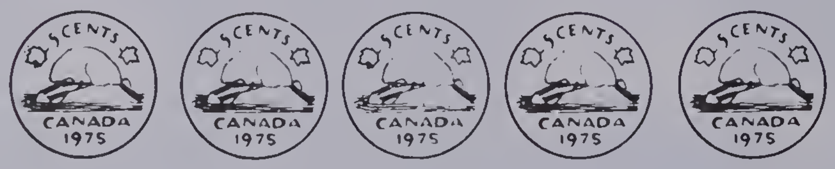
e) 

f) 

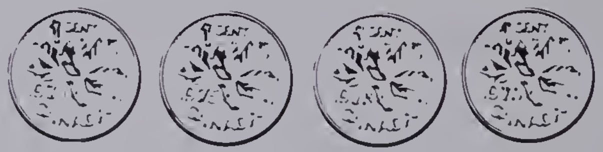
2. Write the multiplication sentence.

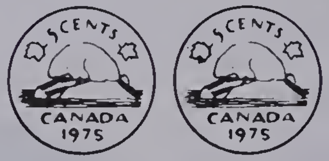
a) 

b) 

c) 

5 CENTS
CANADA
1975

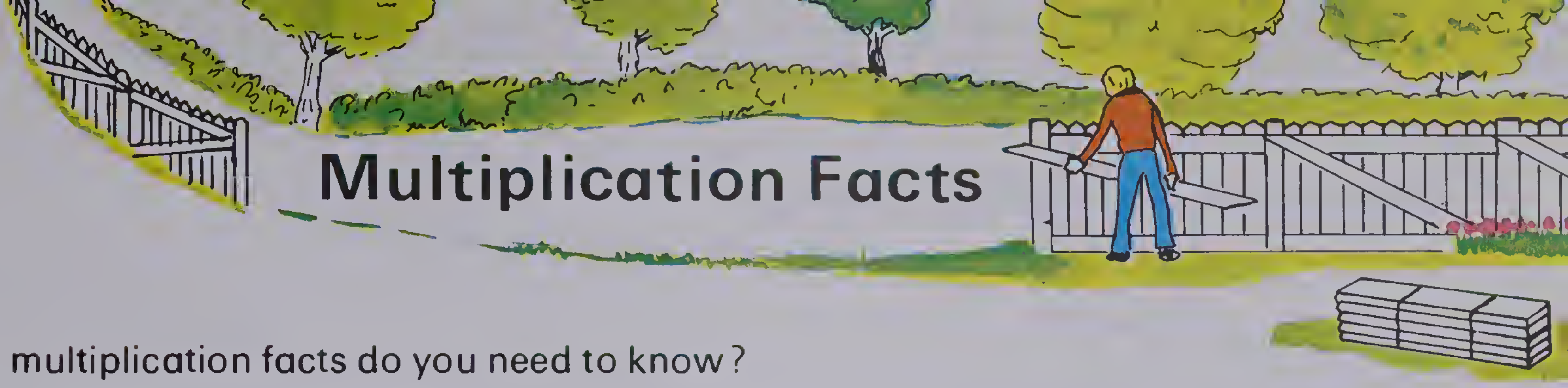
d) 

e) 

5 CENTS
CANADA
1975

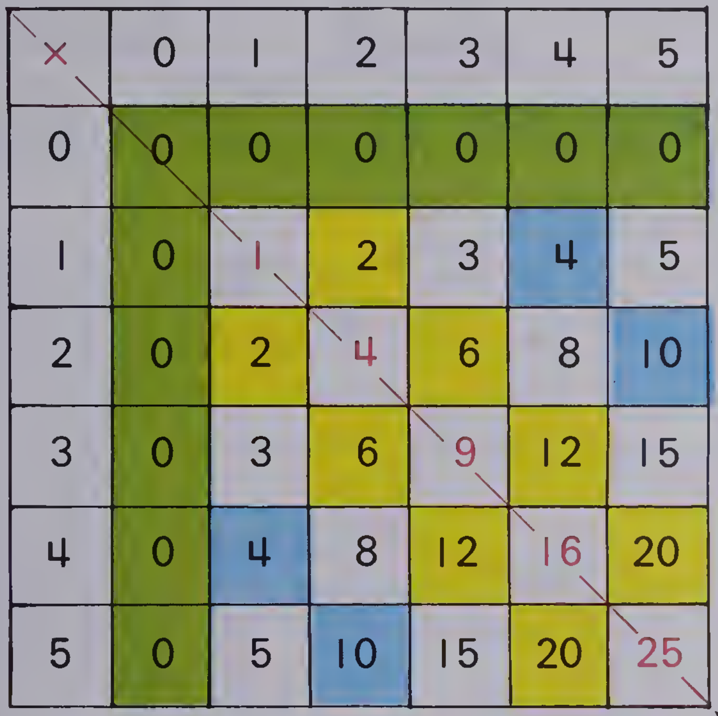
3. Multiply.

a) (1, 5)
b) (5, 1)
c) (3, 2)
d) (2, 3)
e) (5, 4)
f) (4, 5)
g) (1, 4)
h) (4, 1)
i) (3, 4)
j) (4, 3)
k) (4, 2)
l) (2, 4)



Multiplication Facts

How many multiplication facts do you need to know?
Let's look at the chart.
You know that 0 times any number is 0, so you know the first row and column!



×	0	1	2	3	4	5
0	0	0	0	0	0	0
1	0	1	2	3	4	5
2	0	2	4	6	8	10
3	0	3	6	9	12	15
4	0	4	8	12	16	20
5	0	5	10	15	20	25

centre diagonal

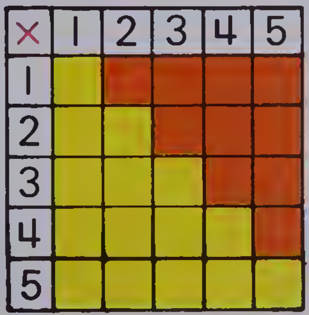
Follow the centre diagonal from corner to corner.

1 × 1 = 1
2 × 2 = 4
3 × 3 = 9
4 × 4 = 16
5 × 5 = 25

Now look at the first diagonal on each side of the centre one.

Left Side	Right Side
2 × 1 = 2	1 × 2 = 2
3 × 2 = 6	2 × 3 = ?
4 × 3 = ?	3 × 4 = ?
5 × 4 = ?	4 × 5 = ?

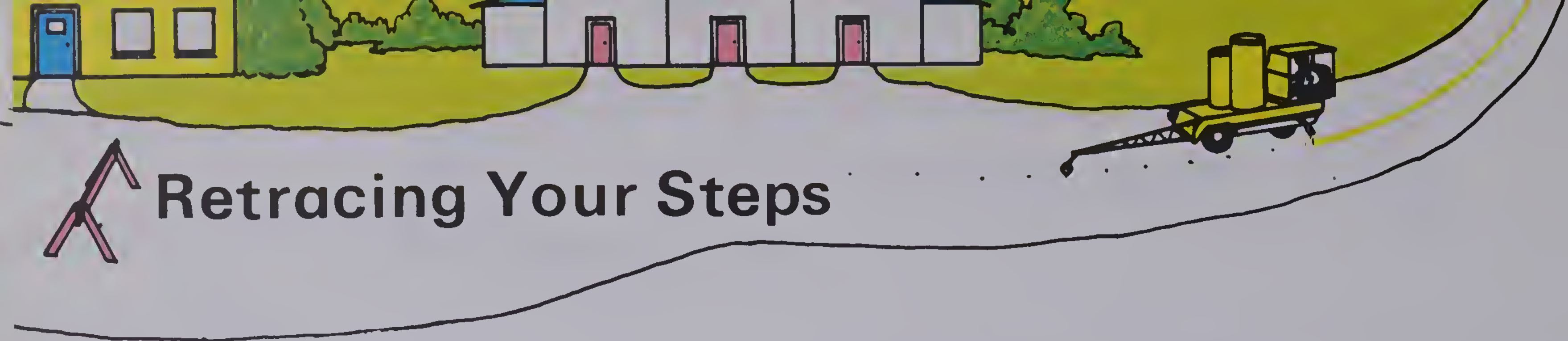
You only need to know one of these diagonals! The answers are the same on both sides.



×	1	2	3	4	5
1	🟨	🟥	🟥	🟥	🟥
2	🟨	🟨	🟥	🟥	🟥
3	🟨	🟨	🟨	🟥	🟥
4	🟨	🟨	🟨	🟨	🟥
5	🟨	🟨	🟨	🟨	🟨

Complete the chart in your notebook.

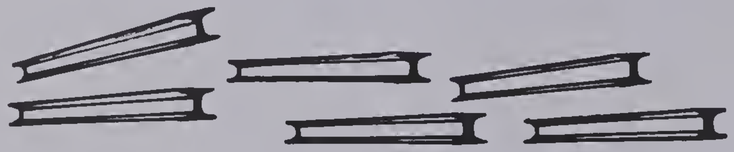
How many facts do you need to know up to 5 × 5?



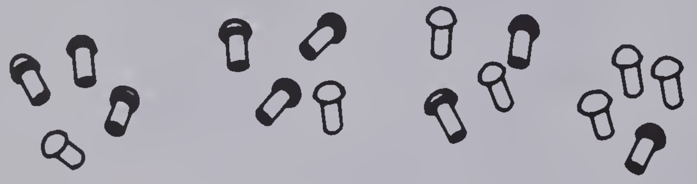
Retracing Your Steps

1. Write a division sentence.

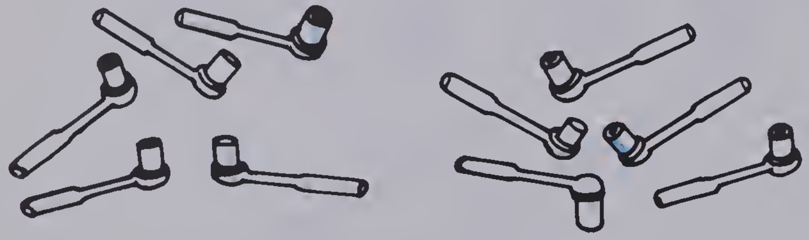
a) How many sets of 3?



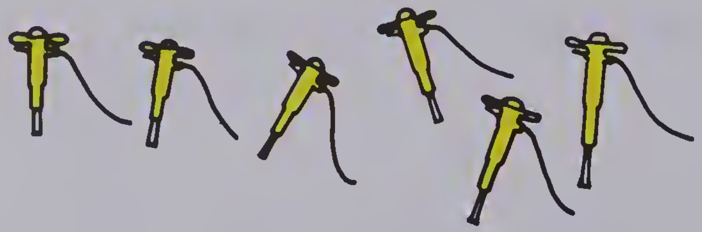
b) How many sets of 4?



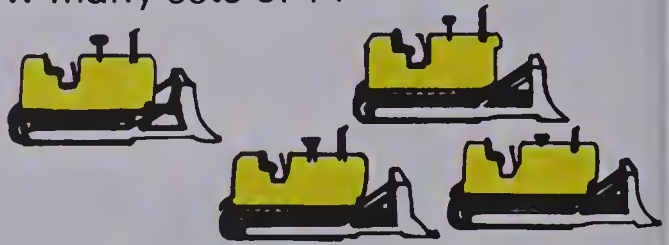
c) How many sets of 5?



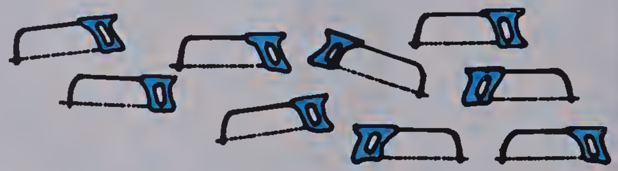
d) How many sets of 2?



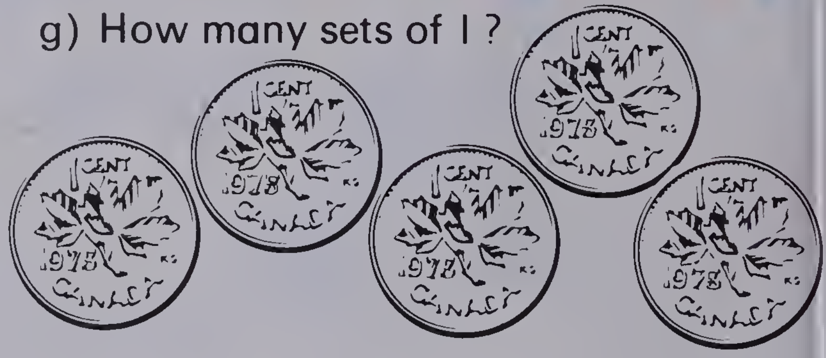
e) How many sets of 1?



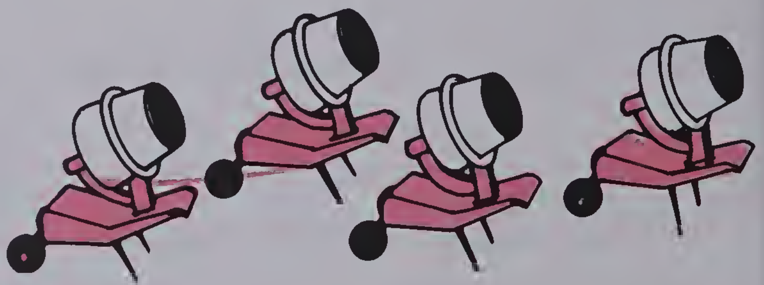
f) How many sets of 3?



g) How many sets of 1?



h) How many sets of 4?



2. Solve.

a) $k = 2 \div 1$
$k = ?$

b) $n = 4 \div 2$
$n = ?$

c) $c = 16 \div 4$
$c = ?$

d) $p = 25 \div 5$
$p = ?$

e) $m = 10 \div 5$
$m = ?$

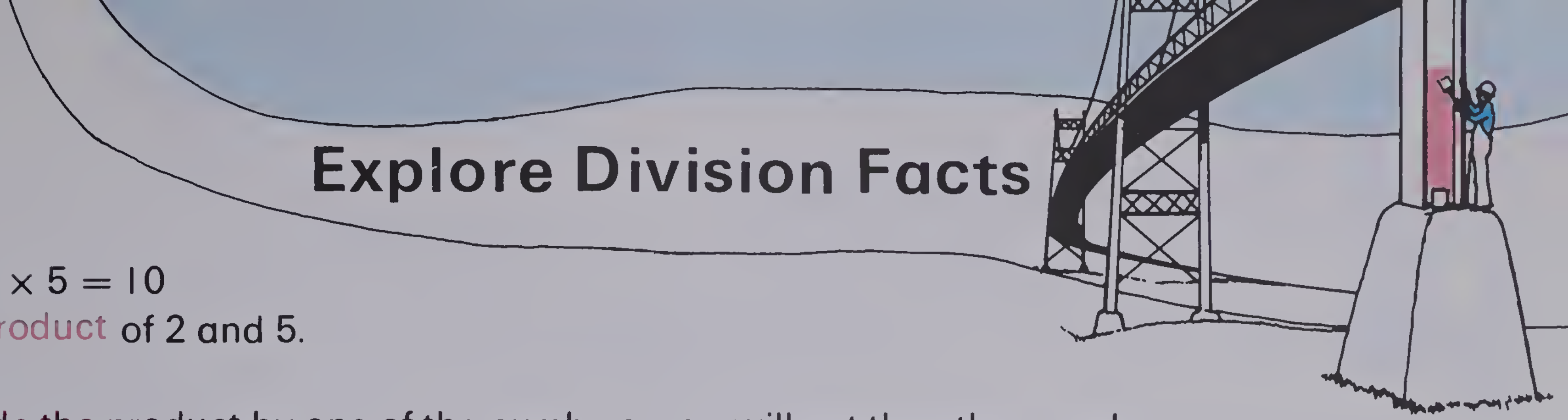
f) $w = 4 \div 4$
$w = ?$

g) $y = 1 \div 1$
$y = ?$

h) $d = 20 \div 5$
$d = ?$

3. Divide.

a) (20, 5)
b) (20, 4)
c) (15, 3)
d) (15, 5)
e) (12, 4)
f) (12, 3)
g) (6, 3)
h) (6, 2)
i) (5, 1)
j) (5, 5)
k) (8, 2)
l) (8, 4)



Explore Division Facts

$2 \times 5 = 10$

10 is the product of 2 and 5.

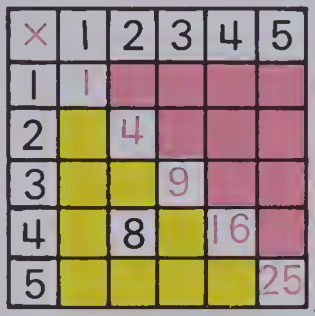
If you divide the product by one of the numbers, you will get the other number.

$10 \div 5 = 2$

$10 \div 2 = 5$

Let's look at the multiplication chart again.

Complete the other diagonals in your notebook.
Then use the chart to help you divide.



×	1	2	3	4	5
1	1	🟥	🟥	🟥	🟥
2	🟨	4	🟥	🟥	🟥
3	🟨	🟨	9	🟥	🟥
4	🟨	8	🟨	16	🟥
5	🟨	🟨	🟨	🟨	25

$8 \div 4 = 2$

$8 \div 2 = 4$

centre diagonal

In Action

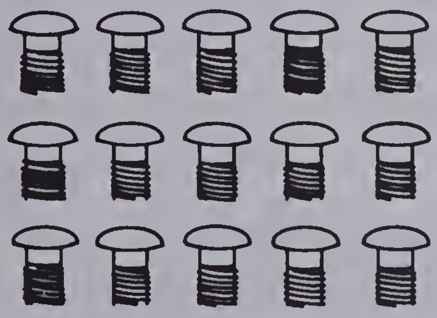
1. For each multiplication sentence, write 2 division sentences.

a) $4 \times 5 = ?$ c) $2 \times 3 = ?$ e) $5 \times 3 = ?$ g) $1 \times 5 = ?$ i) $5 \times 2 = ?$

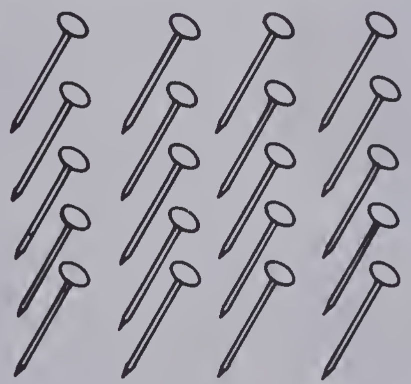
b) $3 \times 4 = ?$ d) $1 \times 2 = ?$ f) $3 \times 1 = ?$ h) $2 \times 4 = ?$ j) $4 \times 1 = ?$

2. Write 2 division sentences for each picture.

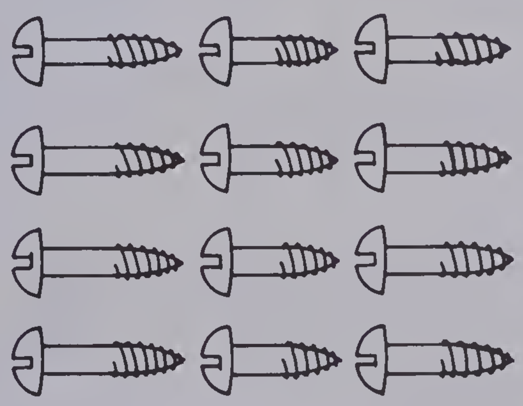
a)



b)



c)



3. Multiply.

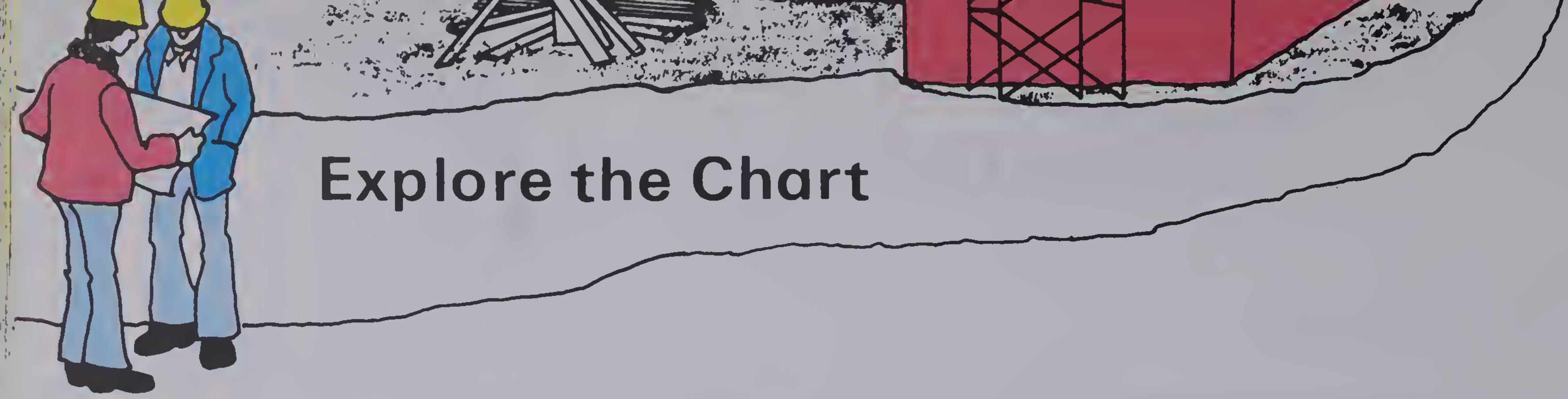
a) (3, 5) c) (4, 3) e) (5, 1)

b) (1, 4) d) (2, 2) f) (2, 3)

4. Divide.

a) (25, 5) c) (12, 3) e) (4, 1)

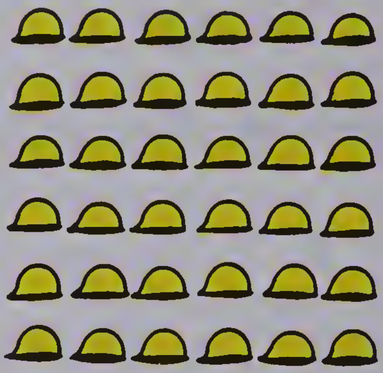
b) (4, 4) d) (8, 2) f) (3, 3)



Explore the Chart

How many hard hats are there in I row?
Write the multiplication sentence.
Can you write 2 division sentences?

How many hard hats are there in 2 rows?
Write a multiplication sentence and the division sentences.
Continue the pattern for 3 rows,
4 rows,
5 rows,
6 rows.



In Action

I. Complete the chart in your notebook.

×	I	2	3	4	5	6
I	I					
2		4				
3			9			
4				16		
5					25	
6						

centre diagonal

2. Divide.

a) (6, I)
b) (24, 6)
c) (12, 2)
d) (30, 6)
e) (36, 6)
f) (24, 4)
g) (25, 5)
h) (18, 3)
i) (30, 5)

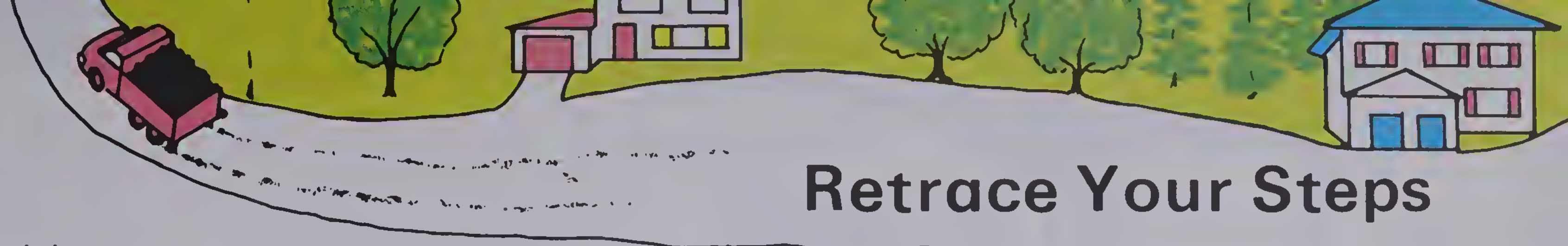
3. Complete.
Your multiplication chart will help you.

a) 4 × 6 = ?
b) 2 × 6 = ?
c) 5 × 6 = ?
d) 3 × 6 = ?
e) 6 × 2 = ?
f) 6 × I = ?
g) 6 × 4 = ?
h) 6 × 5 = ?
i) 30 ÷ 6 = ?
j) 24 ÷ 4 = ?
k) 18 ÷ 6 = ?
l) 12 ÷ 2 = ?
m) 6 ÷ 6 = ?
n) 30 ÷ 5 = ?
o) 12 ÷ 6 = ?
p) 18 ÷ 3 = ?

4. Hard hats cost $3 each.
How much do 6 hats cost?

5. Multiply.

a) (I, 6)
b) (6, 3)
c) (4, 6)
d) (6, 2)
e) (5, 6)
f) (6, 6)
g) (4, 5)
h) (4, 4)
i) (5, 3)



Retrace Your Steps

1. Write a division sentence.

a) 18 gravel trucks.
How many sets of 6?

b) 24 cement mixers.
How many sets of 6?

c) 36 bulldozers.
How many sets of 6?

d) 30 jack hammers.
How many sets of 5?

e) 12 cranes.
How many sets of 2?

f) 16 graders.
How many sets of 4?

2. Solve.

a) $a = 3 \times 6$
$a = ?$

b) $y = 36 \div 6$
$y = ?$

c) $c = 2 \times 6$
$c = ?$

d) $w = 24 \div 6$
$w = ?$

e) $d = 6 \times 5$
$d = ?$

f) $v = 18 \div 3$
$v = ?$

g) $e = 6 \times 1$
$e = ?$

h) $u = 12 \div 2$
$u = ?$

3. Multiply.

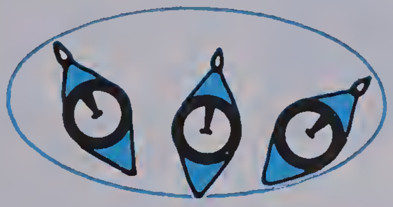
a) (3, 5)
b) (4, 6)
c) (2, 4)
d) (3, 3)
e) (6, 4)
f) (5, 6)
g) (3, 2)
h) (0, 4)
i) (3, 6)

4. Divide.

a) (30, 6)
b) (5, 5)
c) (8, 4)
d) (18, 3)
e) (16, 4)
f) (6, 1)
g) (20, 4)
h) (5, 1)
i) (25, 5)

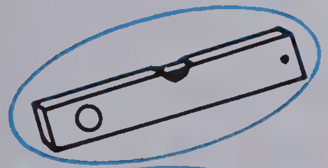
5. How many?

a)



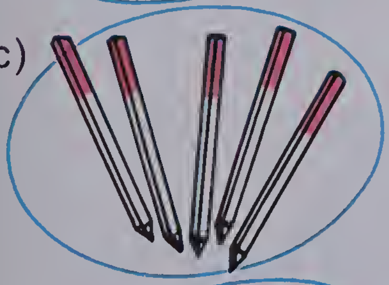
Multiply by 10. Then, divide by 5.
You don't need to count more than 3.
Think 30, 6.
Write 6.

b)



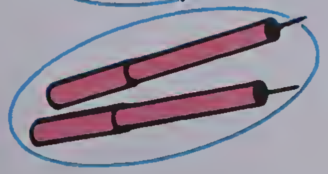
Multiply by 6.
Then, divide by 3.

c)



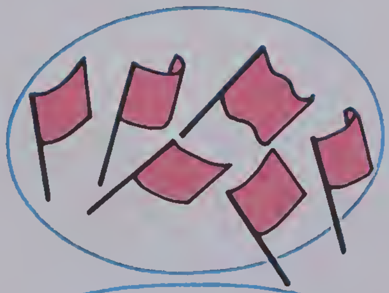
Multiply by 4.
Then, divide by 10.

d)



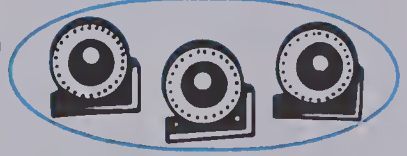
Divide by 2.
Then, multiply by 5.

e)



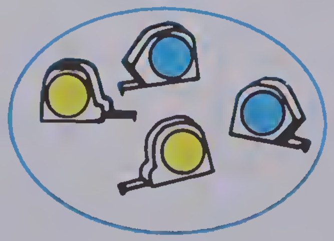
Multiply by 5.
Then, divide by 10.

f)

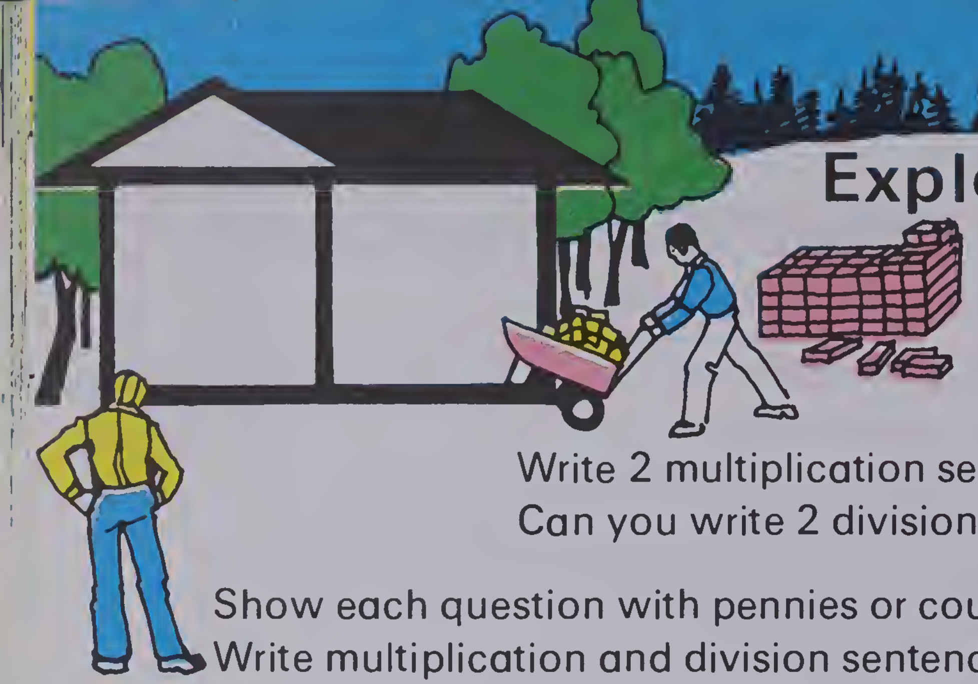


Multiply by 4.
Then, divide by 6.

g)



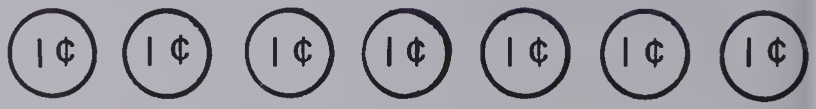
Divide by 2.
Then, multiply by 6.



Explore 3 × 7, 7 × 3, 21 ÷ 7, 21 ÷ 3

Work with a partner.
Make a row of 7 pennies.
How many cents are there?
Write 2 multiplication sentences.
Can you write 2 division sentences?

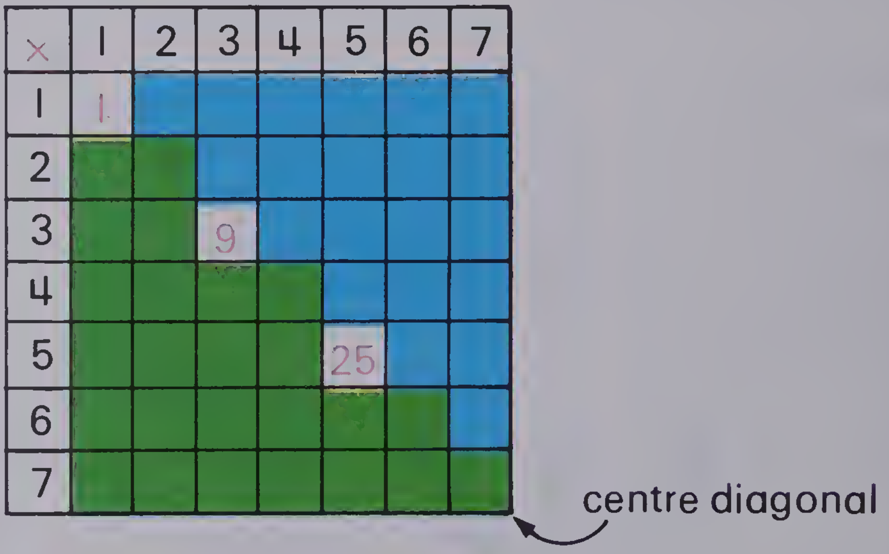
Show each question with pennies or counters.
Write multiplication and division sentences.



2 rows of 7 pennies
3 rows of 7 pennies
4 rows of 7 pennies
5 rows of 7 pennies
6 rows of 7 pennies
7 rows of 7 pennies

In Action

1. Complete the chart in your notebook.
How many multiplication facts do you know now?



×	1	2	3	4	5	6	7
1	1						
2							
3			9				
4							
5					25		
6							
7							

centre diagonal

2. Complete.

a) 21 ÷ 7 = ?
b) 6 × 7 = ?
c) 35 ÷ 7 = ?
d) 4 × 7 = ?
e) 49 ÷ 7 = ?
f) 2 × 7 = ?
g) 28 ÷ 4 = ?
h) 1 × 7 = ?
i) 21 ÷ 3 = ?
j) 3 × 7 = ?
k) 14 ÷ 2 = ?
l) 7 × 5 = ?

3. Solve.
Use the chart if you need help.

a) $n = 7 \div 7$
$n = ?$

b) $k = 42 \div 7$
$k = ?$

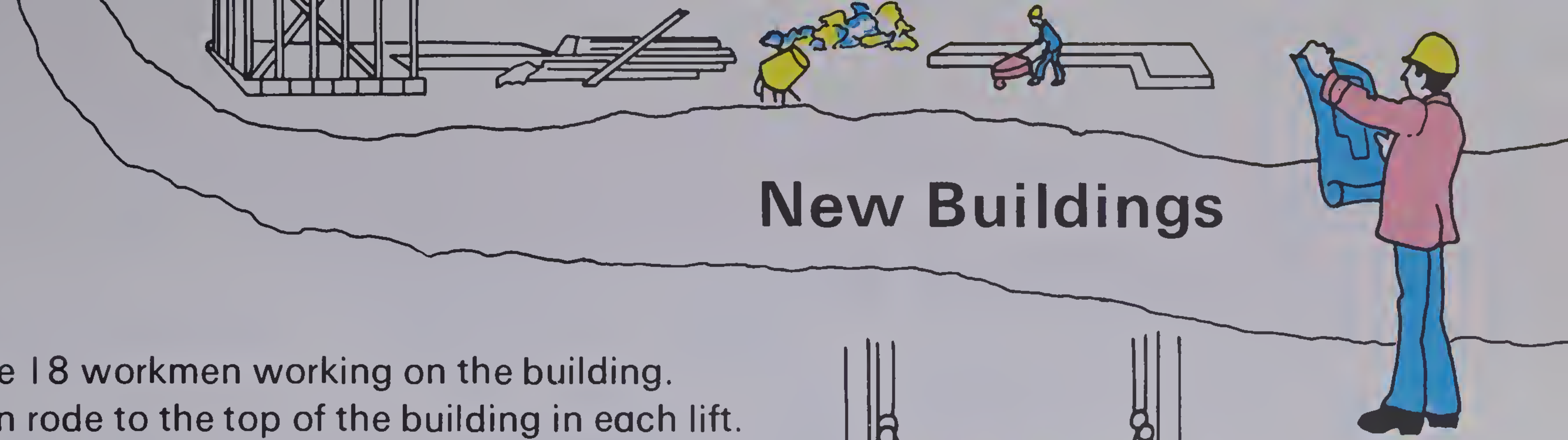
c) $m = 35 \div 5$
$m = ?$

d) $a = 7 \div 1$
$a = ?$

e) $y = 14 \div 7$
$y = ?$

f) $c = 28 \div 7$
$c = ?$

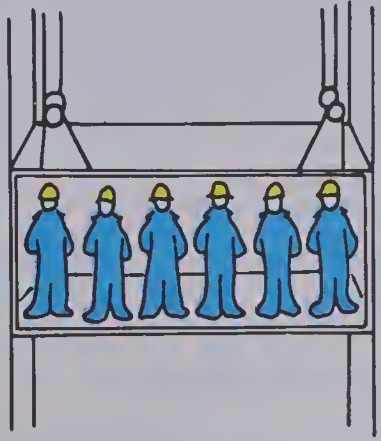
4. There are 6 stores in the plaza.
Each store has 7 display counters.
How many display counters are in the plaza?



New Buildings

There were 18 workmen working on the building.
6 workmen rode to the top of the building in each lift.
How many lifts did they use?

$18 \div 6 = 3$
They used 3 lifts.



1. The construction company was building 4 buildings.
   Each building had 7 floors.
   How many floors was the company building?

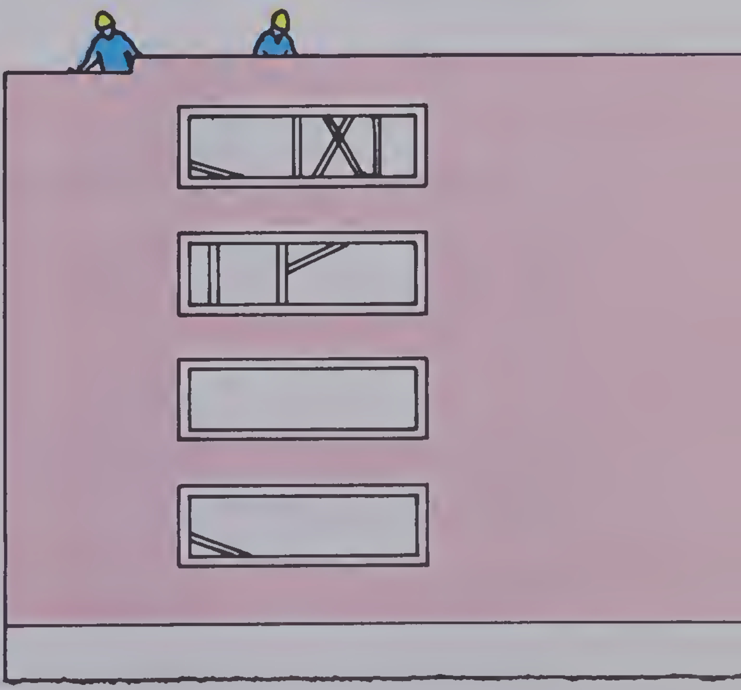
2. There are 42 beams on a flat truck.
   Each wall in a room needs 6 beams.
   How many walls can the workmen make?

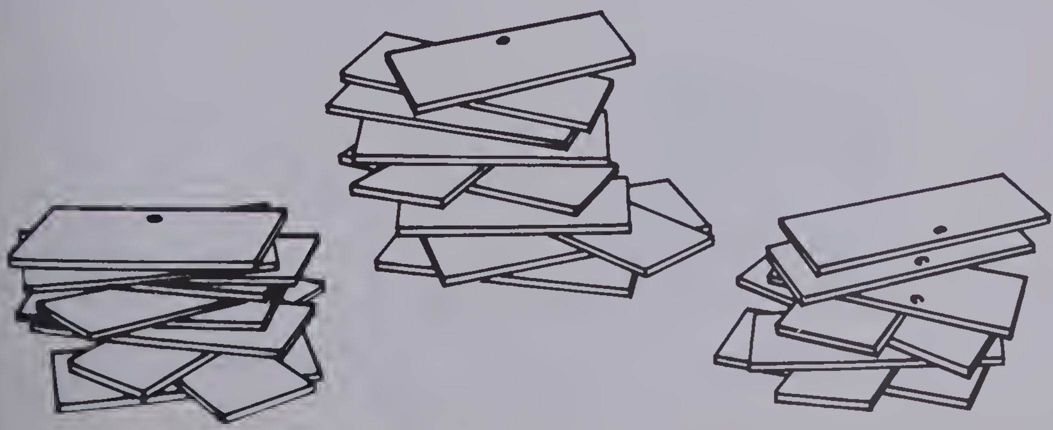
3. There are 5 riveters.
   Each riveter drives 7 rivets into the beams every minute.
   How many rivets do the riveters use each minute?

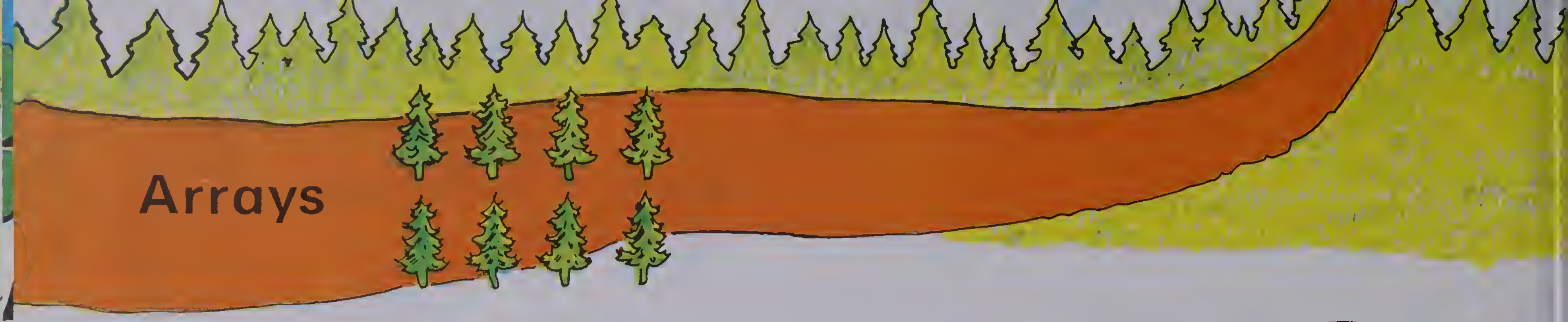
4. The construction job needed 3 loads of cement each hour.
   How many loads did it need in 6 hours?

5. A truck brought in 35 windows for the front of the building.
   7 windows are needed to finish each storey.
   How many storeys will the windows finish?

6. Write a story problem about the picture.



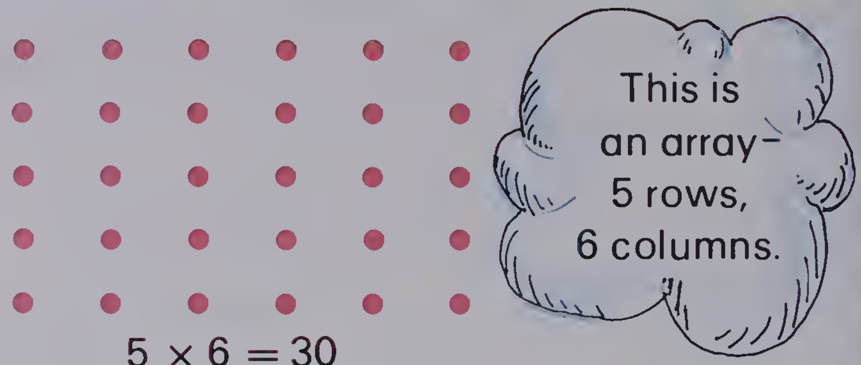




Arrays

If you can't remember a fact,
how can you find the answer?

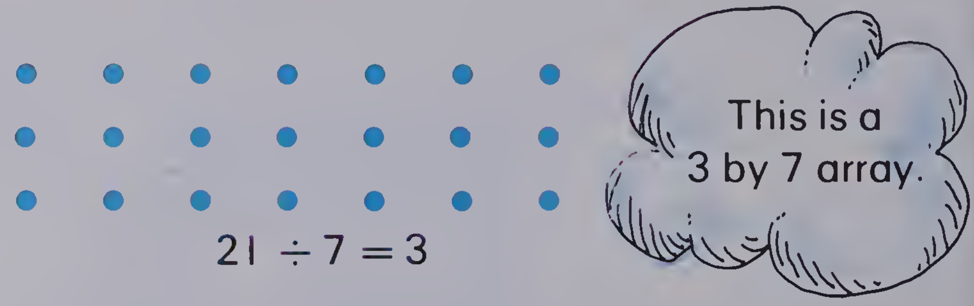
Suppose you get stuck on 5 × 6.
Draw 5 rows of dots, with 6 dots in each row.
Now count the dots.
You have found the answer.



This is an array – 5 rows, 6 columns.

5 × 6 = 30

What if you get stuck on 21 ÷ 7?
Draw rows of 7 dots,
until you have 21 dots altogether.
How many rows are there?
Counting gives you the answer.



This is a 3 by 7 array.

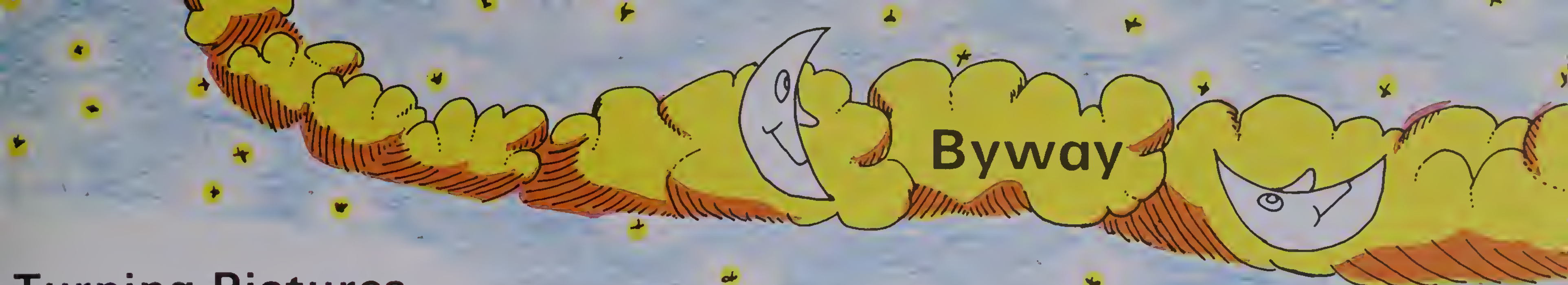
21 ÷ 7 = 3

In Action

1. Think about multiplication for each number pair. Write the answers.
   - a) (5, 7)
   - b) (6, 5)
   - c) (7, 4)
   - d) (6, 3)
   - e) (3, 7)
   - f) (7, 6)
   - g) (4, 6)
   - h) (4, 7)
   - i) (0,7)
   - j) (5,5)
   - k) (1,6)
   - l) (2,7)

2. Think about division. Write the answers.
   - a) (21, 7)
   - b) (12, 6)
   - c) (30, 5)
   - d) (42, 7)
   - e) (14, 7)
   - f) (28, 4)
   - g) (18, 3)
   - h) (14, 2)
   - i) (35, 5)
   - j) (42, 6)
   - k) (21, 3)
   - l) (7, 7)

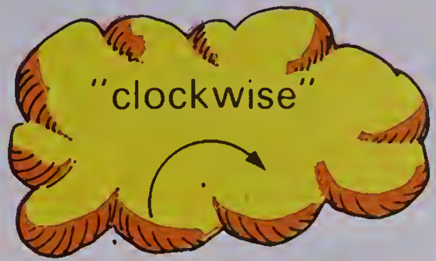
3. Draw an array for each fact.
   Write the answers.
   - a) 2 × 7 = ?
   - b) 7 × 6 = ?
   - c) 6 × 5 = ?
   - d) 28 ÷ 7 = ?
   - e) 18 ÷ 6 = ?
   - f) 35 ÷ 5 = ?
   - g) 49 ÷ 7 = ?
   - h) 5 × 1 = ?
   - i) 7 × 0 = ?
   - j) 24 ÷ 6 = ?

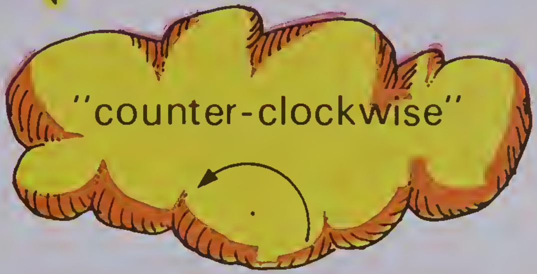


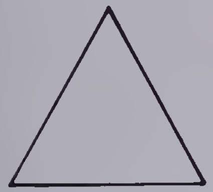
$\frac{1}{4}$ turn
counter-clockwise

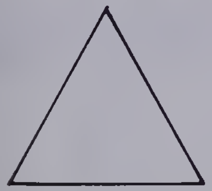
Turning Pictures

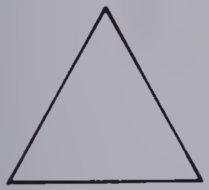
Trace the pictures.
Then turn them in your mind.
Draw the pictures in the new position.

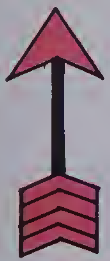


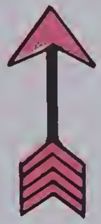


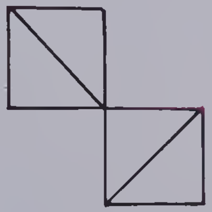
1.

$\frac{1}{4}$ turn clockwise

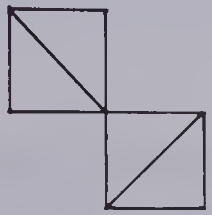
2.

$\frac{1}{4}$ turn counter-clockwise

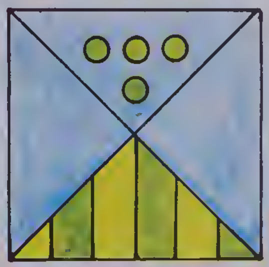
3.

$\frac{1}{2}$ turn

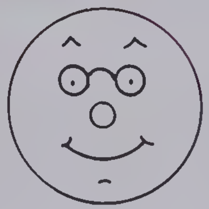
4.

$\frac{1}{4}$ turn clockwise

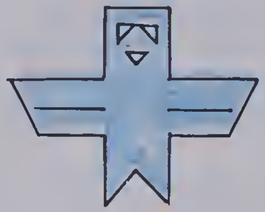
5.

$\frac{1}{2}$ turn

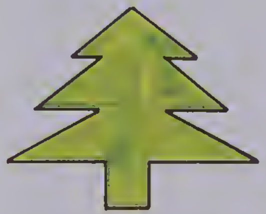
6.

$\frac{1}{4}$ turn counter-clockwise

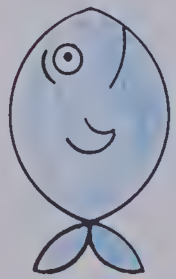
7.

$\frac{1}{2}$ turn

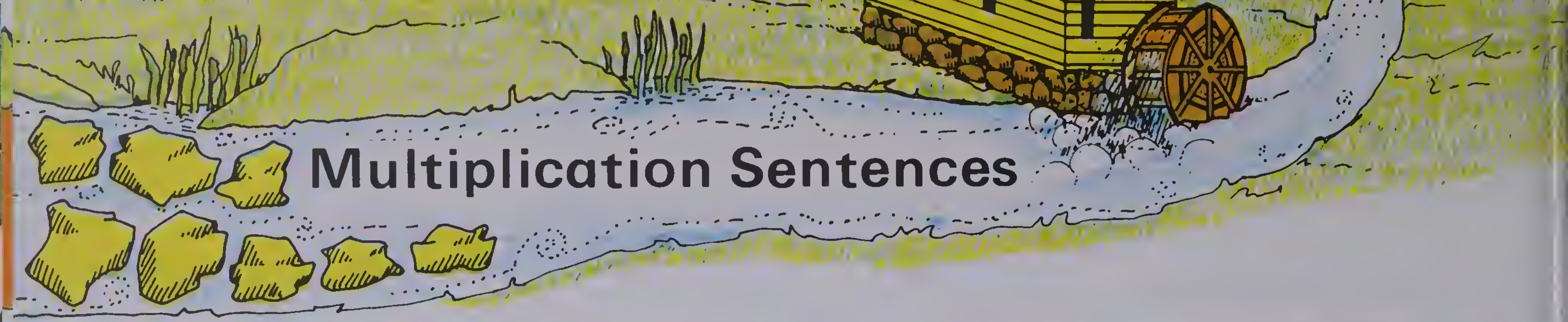
8.

$\frac{1}{4}$ turn clockwise

9.

$\frac{1}{4}$ turn counter-clockwise

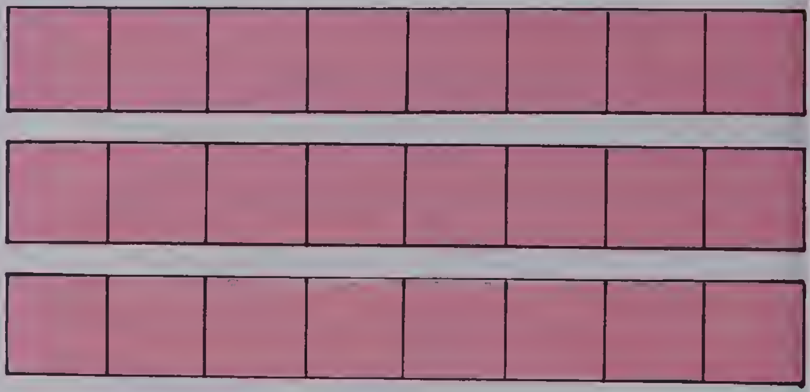
10.

$\frac{1}{2}$ turn

11.

$\frac{1}{4}$ turn clockwise

12.

$\frac{1}{4}$ turn counter-clockwise



Multiplication Sentences



How many strips are there?
How many squares are in each strip?
How many squares are there altogether?
Write 2 multiplication sentences.

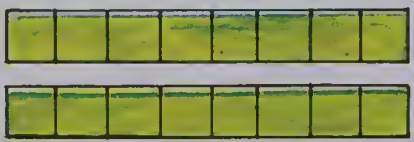
Use 8-strips to show multiplication facts.
Write 2 sentences for each fact you show.

Then, write 2 division sentences for each multiplication fact.

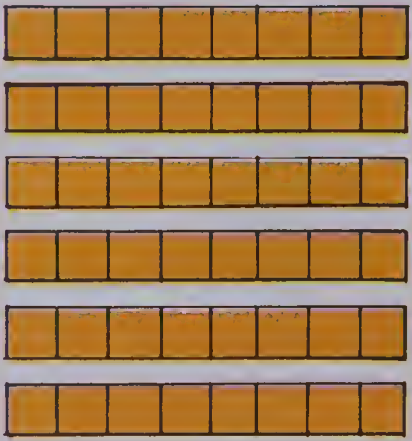
In Action

1. Write 2 multiplication sentences and 2 division sentences for each picture.

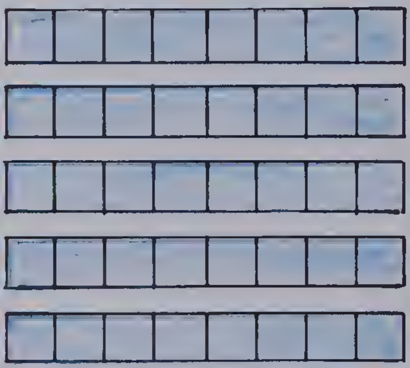
a)



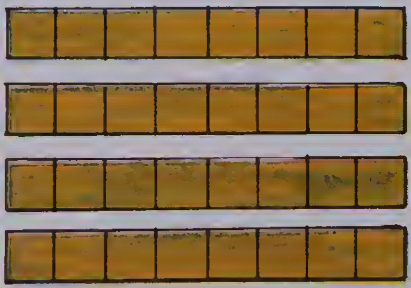
b)



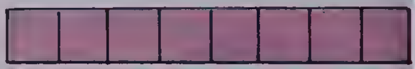
c)



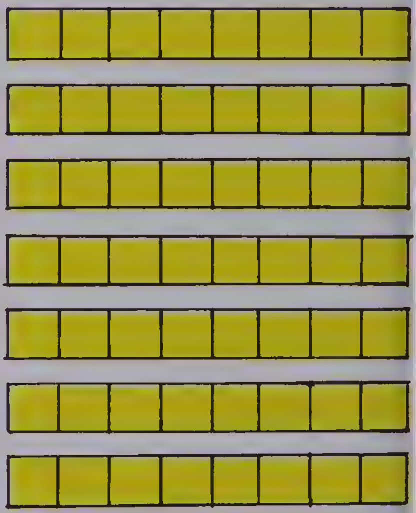
d)



e)



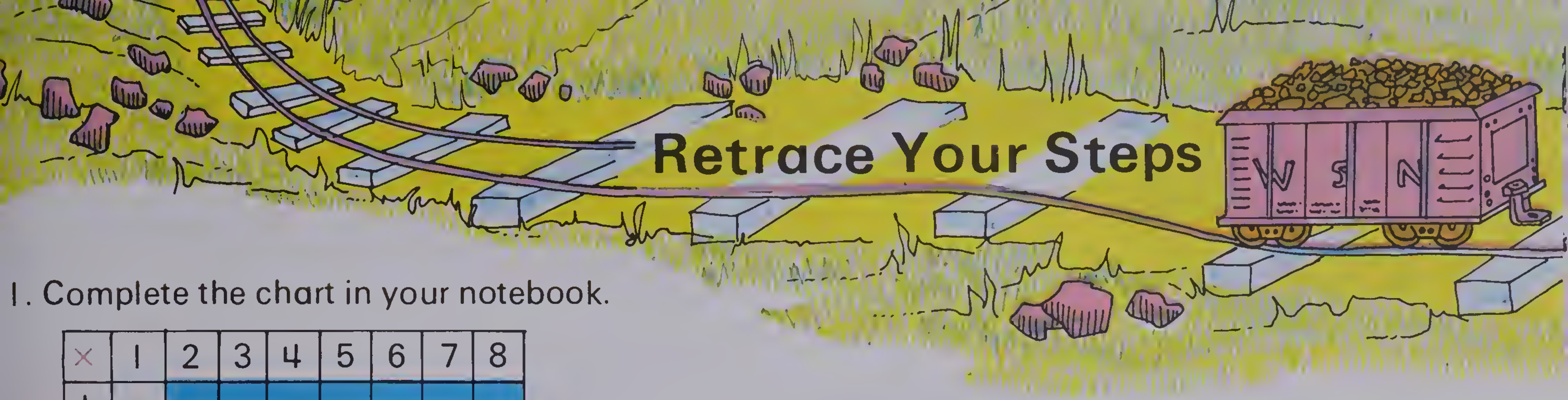
f)



2. Use 6-strips and 7-strips to show the facts.
   Write the answers.

   a) 3 × 6 b) 8 × 6 c) 5 × 6 d) 1 × 7 e) 8 × 7 f) 6 × 7

Retrace Your Steps



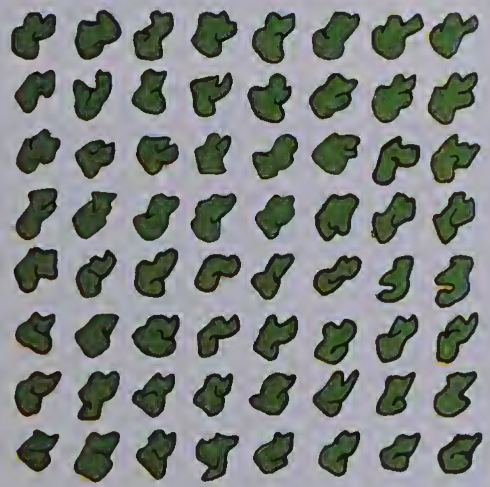
1. Complete the chart in your notebook.

×	1	2	3	4	5	6	7	8
1		▨	▨	▨	▨	▨	▨	▨
2		4	▨	▨	▨	▨	▨	▨
3				▨	▨	▨	▨	▨
4				16	▨	▨	▨	▨
5						▨	▨	▨
6						36	▨	▨
7								▨
8								64

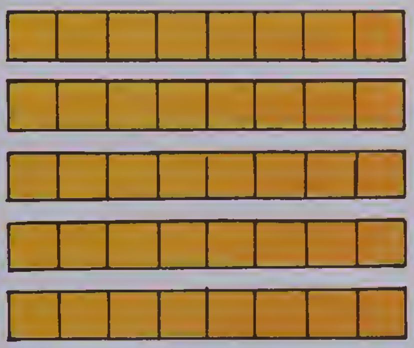
How many multiplication facts did you need to know?

2. Write multiplication and division sentences.

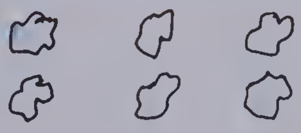
a)



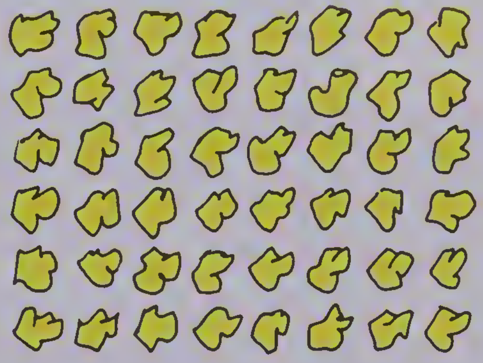
b)



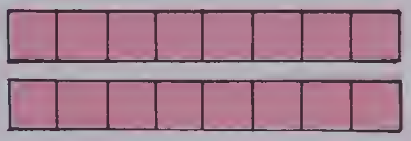
c)



d)

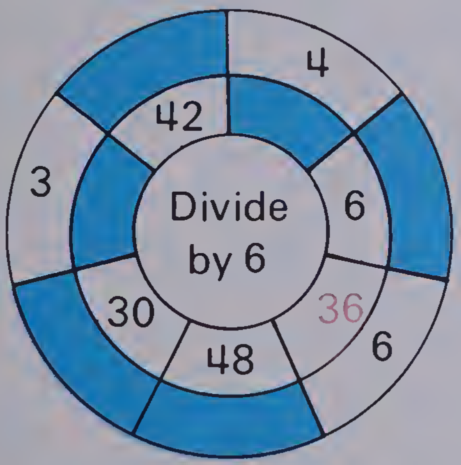


e)

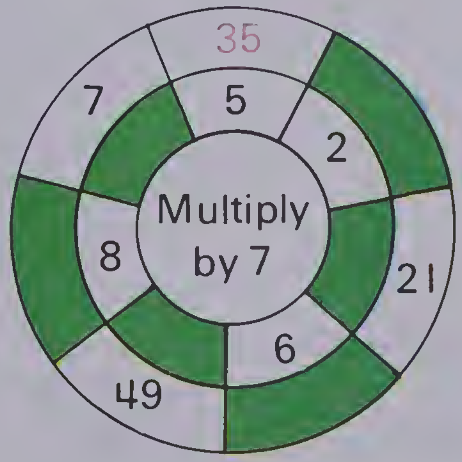


3. Complete the number wheels in your notebook.

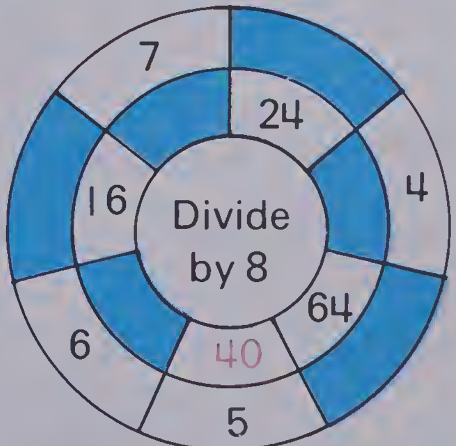
a)


Divide by 6
4
42
6
3
36
30
48
6

b)

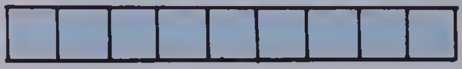

35
7
5
2
Multiply by 7
8
21
6
49

c)


7
24
16
Divide by 8
4
64
6
40
5

9 New Multiplication Facts

Use 9-strips to explore more new facts.
Write the multiplication and division sentences.



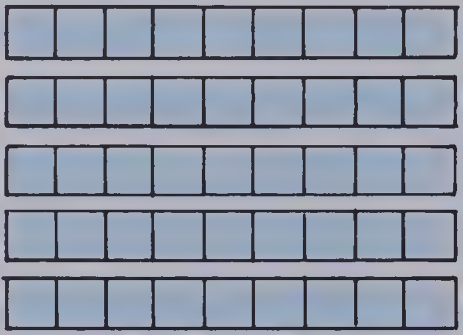
Make a multiplication chart in your notebook.
You can multiply from 1 × 1 to 9 × 9.
How many facts do you need to know now?

$1 \times 9 = 9$
$9 \times 1 = 9$
$9 \div 9 = 1$
$9 \div 1 = 9$

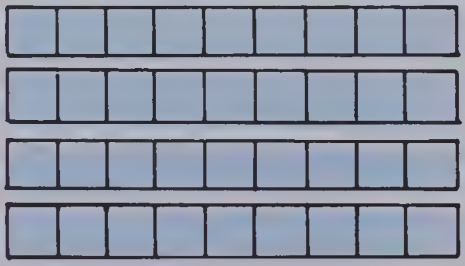
In Action

1. Can you write 4 sentences for each picture?

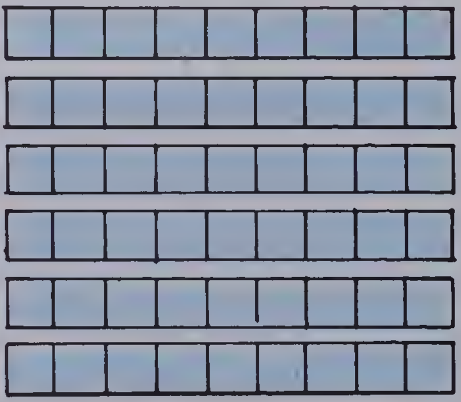
a)



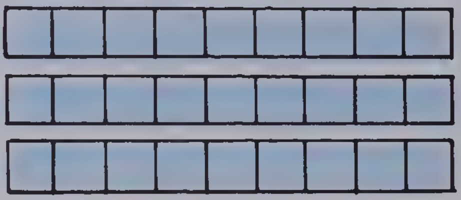
b)



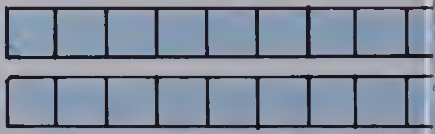
c)



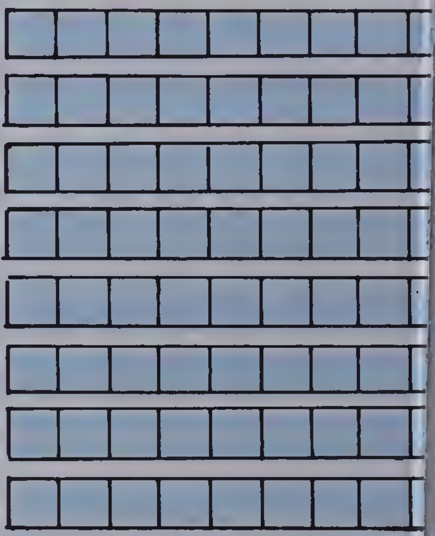
d)



e)



f)



2. Multiply.
   - a) (7, 9)
   - b) (8, 1)
   - c) (9, 6)
   - d) (6, 8)
   - e) (3, 9)
   - f) (4, 8)
   - g) (9, 9)
   - h) (9, 2)
   - i) (5, 7)
   - j) (1, 9)
   - k) (8, 5)
   - l) (3, 6)

3. Divide.
   - a) (24, 8)
   - b) (81, 9)
   - c) (30, 6)
   - d) (45, 5)
   - e) (54, 9)
   - f) (18, 2)
   - g) (63, 7)
   - h) (18, 9)
   - i) (27, 3)
   - j) (72, 9)
   - k) (24, 3)
   - l) (36, 4)

4. The woodlot has 9 rows of maple trees.
   There are 8 trees in each row.
   How many maple trees are there in the woodlot?

Our Resources

1. In Alberta, there are 5 oil companies.
Each has 9 oil wells.
How many oil wells have they?

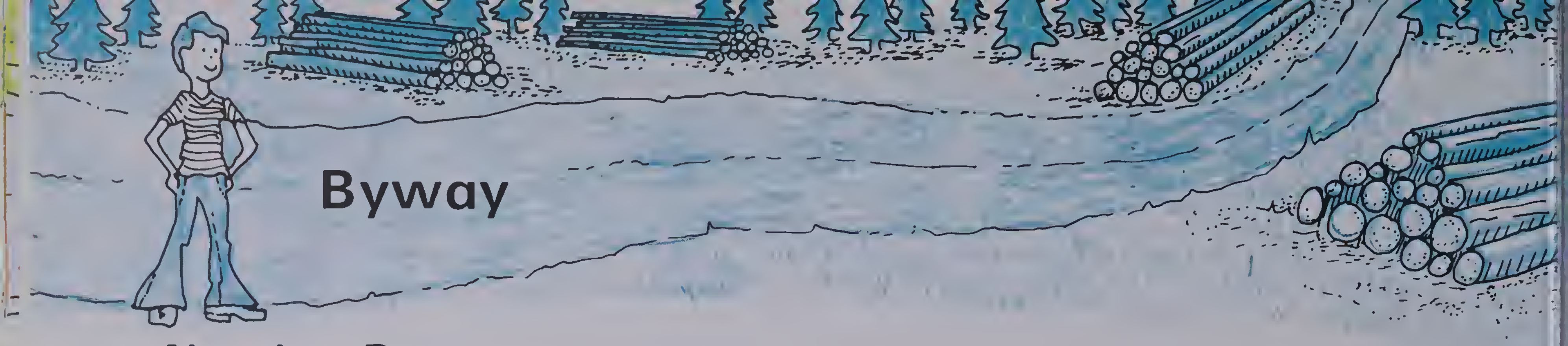
2. Lumberjacks take 63 trees from a stand of timber in a day.
7 men each cut the same number of trees.
How many trees does each man cut?

3. In 7 days, a mining company sunk a shaft 56 m into the earth.
How many metres did they dig each day?

4. 9 farms each grow 8 ha (hectares) of alfalfa.
How many hectares of alfalfa do they grow?

5. There were 54 large forests in 6 provinces.
Each province had the same number of forests.
How many forests were in each province?

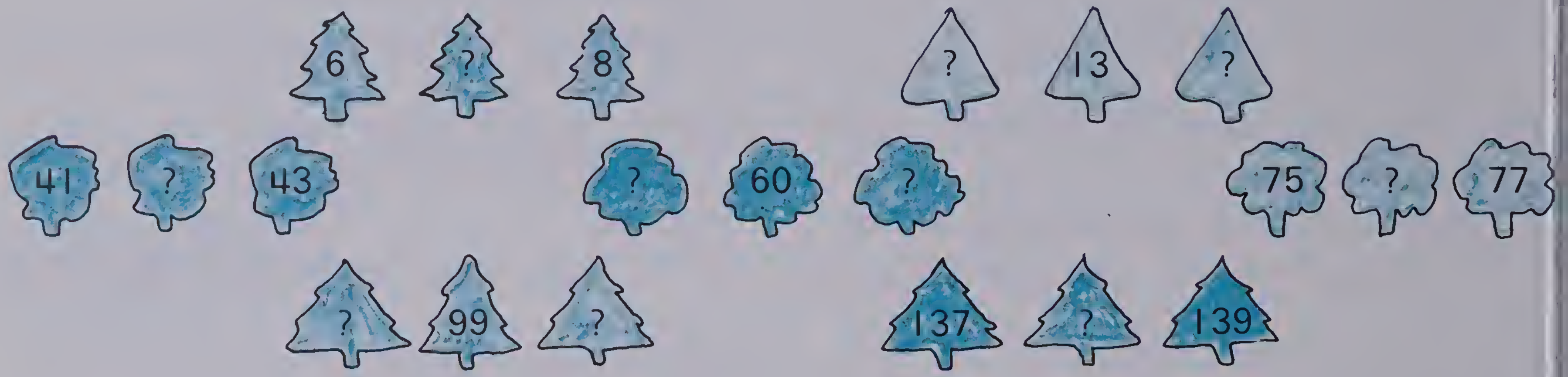
6. An oil well produces 5 kL of oil each day.
How many kilolitres of oil does it produce in 9 days?



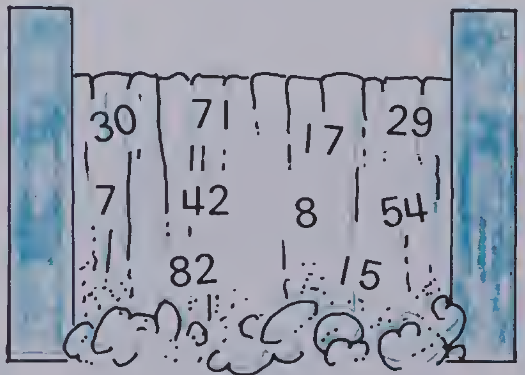
Byway

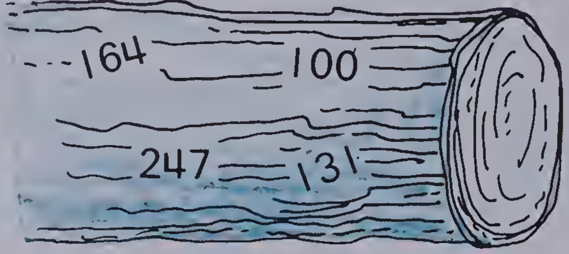
Number Patterns

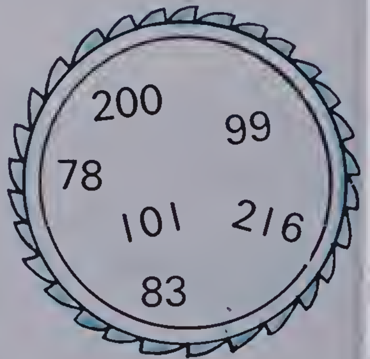
Write the numerals before, after, or between.


6 ? 8
? 13 ?
41 ? 43
? 60 ?
75 ? 77
? 99 ?
137 ? 139

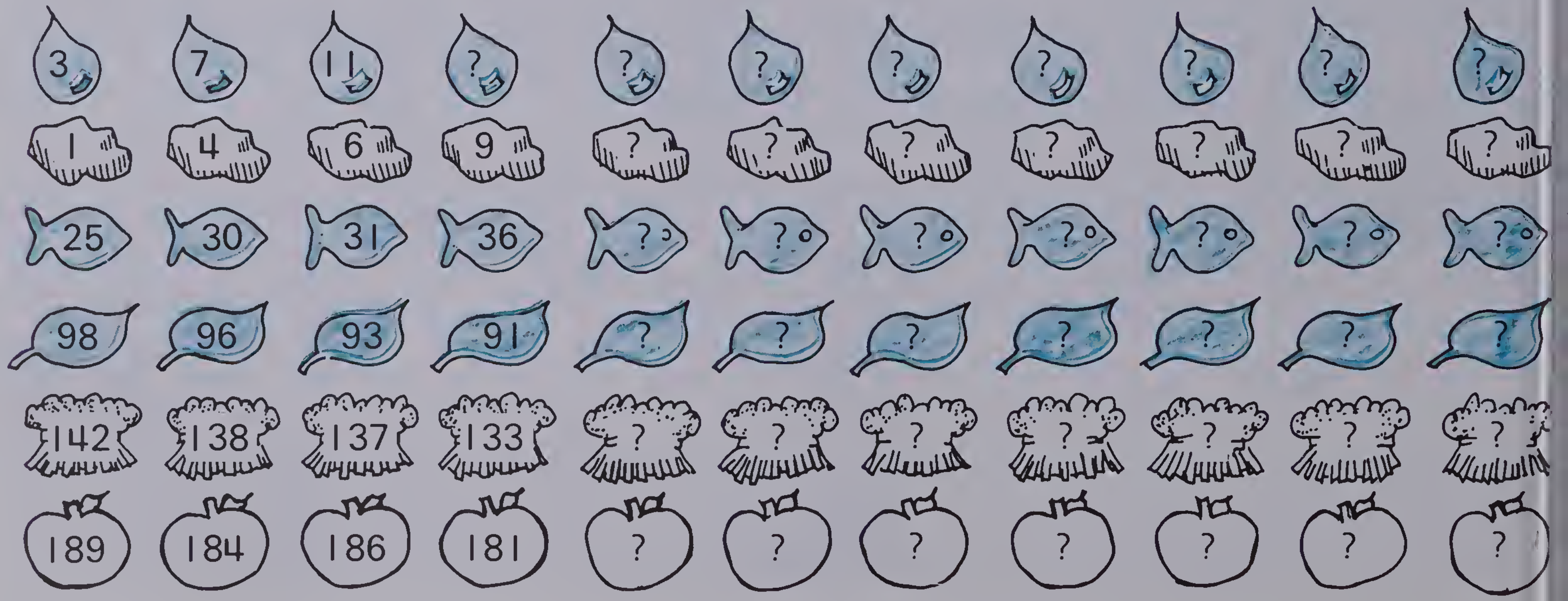
Order the numbers from greatest to least for each picture.


30
71
17
29
7
42
8
54
82
15


164
100
247
131

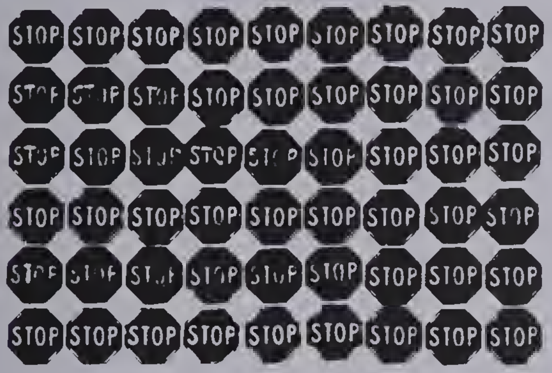

200
99
78
101
216
83

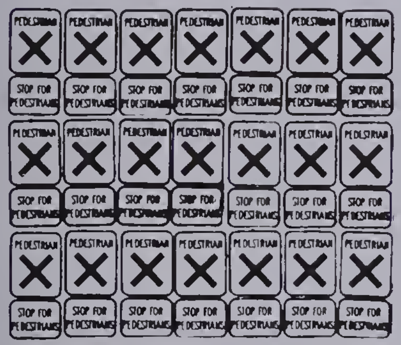
Continue the patterns in your notebook.

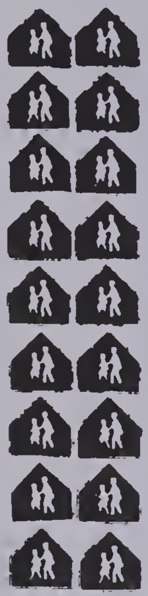

3 7 11 ? ? ? ? ? ? ? ?
1 4 6 9 ? ? ? ? ? ? ?
25 30 31 36 ? ? ? ? ? ? ?
98 96 93 91 ? ? ? ? ? ? ?
142 138 137 133 ? ? ? ? ? ? ?
189 184 186 181 ? ? ? ? ? ? ?

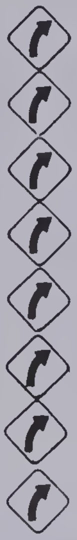
Retrace Your Steps

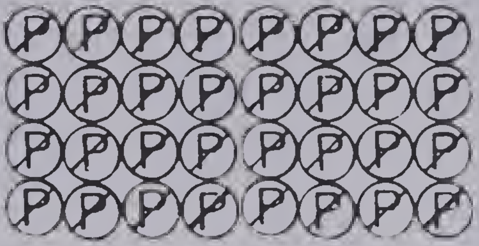
1. Write 2 multiplication sentences and 2 division sentences for each array.

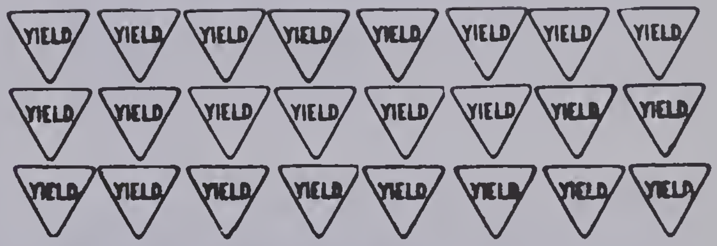
a)


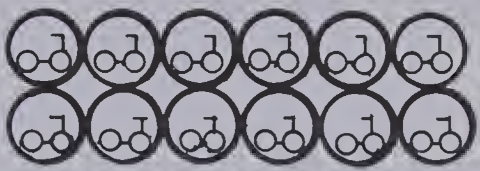
b)


c)


d)


e)


f)


g)


2. Divide.

a) $9\overline{)27}$
b) $7\overline{)56}$
c) $8\overline{)32}$
d) $6\overline{)6}$
e) $6\overline{)24}$
f) $9\overline{)63}$
g) $8\overline{)48}$
h) $6\overline{)54}$
i) $7\overline{)49}$
j) $8\overline{)56}$
k) $7\overline{)63}$
l) $8\overline{)64}$

3. Multiply.

$$\begin{array}{ccccc} 9 & 5 & 7 & 6 & 9 \\ \underline{7} & \underline{8} & \underline{4} & \underline{5} & \underline{8} \end{array}$$

$$\begin{array}{ccccc} 4 & 8 & 5 & 3 & 2 \\ \underline{8} & \underline{7} & \underline{9} & \underline{9} & \underline{7} \end{array}$$

4. Complete the table in your notebook.

Number Pair	Operation	Answer
(2, 9)	multiplication	
(5, 7)	multiplication	
(32, 4)	division	
(45, 5)	division	
(9, 4)	multiplication	
(27, 3)	division	
(72, 8)	division	

5. Solve.

a) $k = 63 \div 9$
$k = ?$

b) $n = 9 \times 7$
$n = ?$

c) $f = 40 \div 5$
$f = ?$

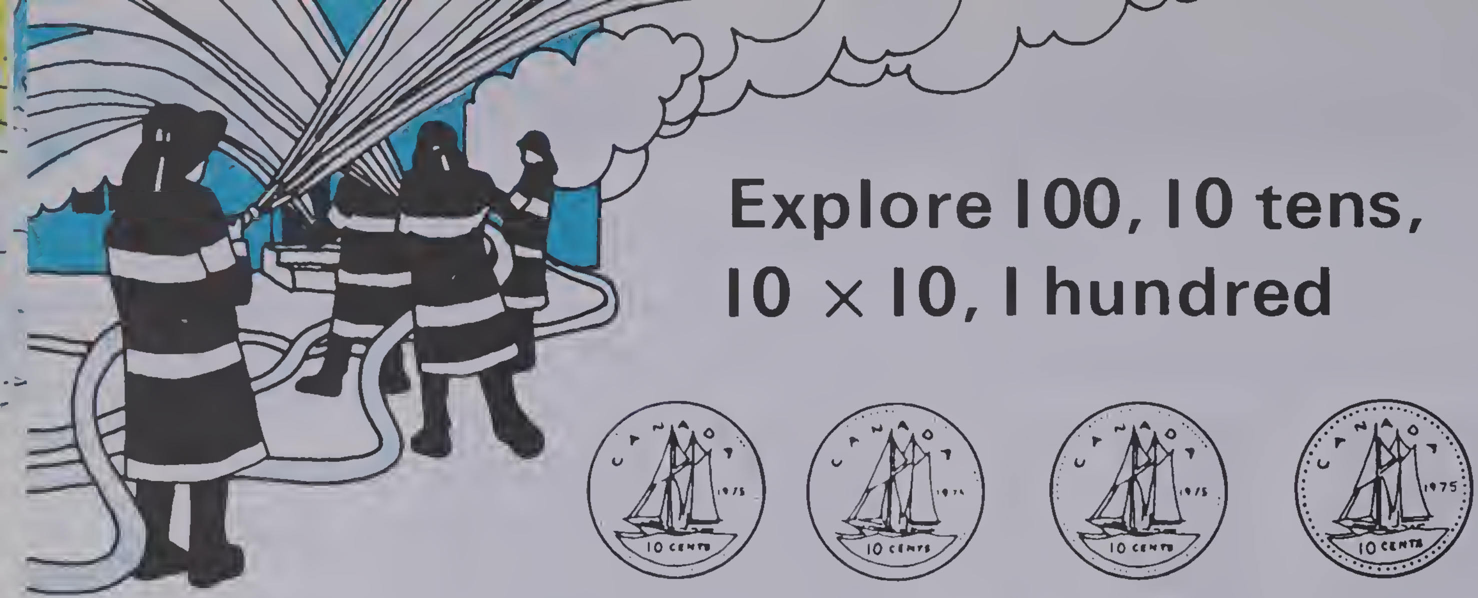
d) $p = 36 \div 9$
$p = ?$

e) $m = 4 \times 8$
$m = ?$

f) $w = 4 \times 6$
$w = ?$

g) $r = 81 \div 9$
$r = ?$

h) $h = 72 \div 8$
$h = ?$



Explore 100, 10 tens, 10 × 10, 1 hundred

How many dimes are there?
How many cents are in each dime?
How many cents are there altogether?

Write the multiplication sentence.
Now write a different multiplication sentence for the same fact.
Write 2 division sentences.

Use dimes to recall other multiplication and division facts.

In Action

1. Complete the table in your notebook.

×	1	2	3	4	5	6	7	8	9	10
1										
2		4								
3										
4										
5					25					
6										
7										
8										
9										
10										100

2. Multiply.

a) (1, 10)
b) (8, 10)
c) (6, 10)
d) (9, 10)
e) (7, 10)
f) (2, 10)
g) (3,10)
h) (5,10)
i) (10,4)

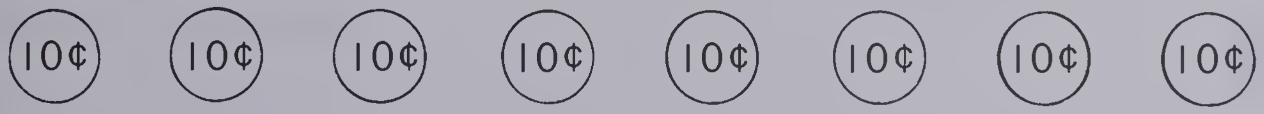
3. Divide.

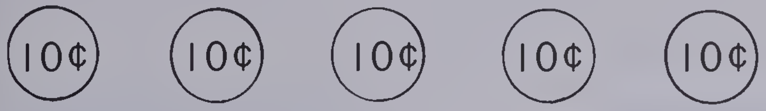
a) (50, 10)
b) (70, 7)
c) (90, 9)
d) (60, 10)
e) (10, 10)
f) (80, 10)
g) (20,2)
h) (40,4)
i) (30,10

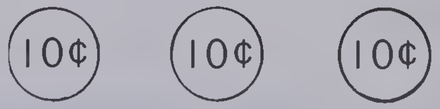
4. Work with a partner.
Show a set of dimes.
Your partner writes a multiplication sentence and a division sentence.
He shows the next set of dimes.

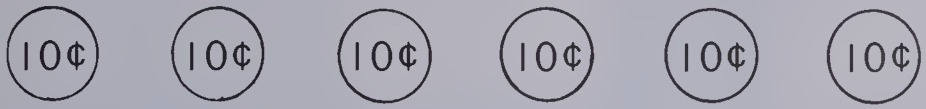
In Action

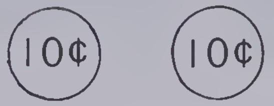
1. Write 2 multiplication sentences and 2 division sentences for each picture.

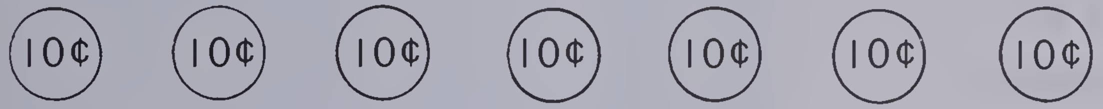
a) 

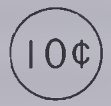
b) 

c) 

d) 

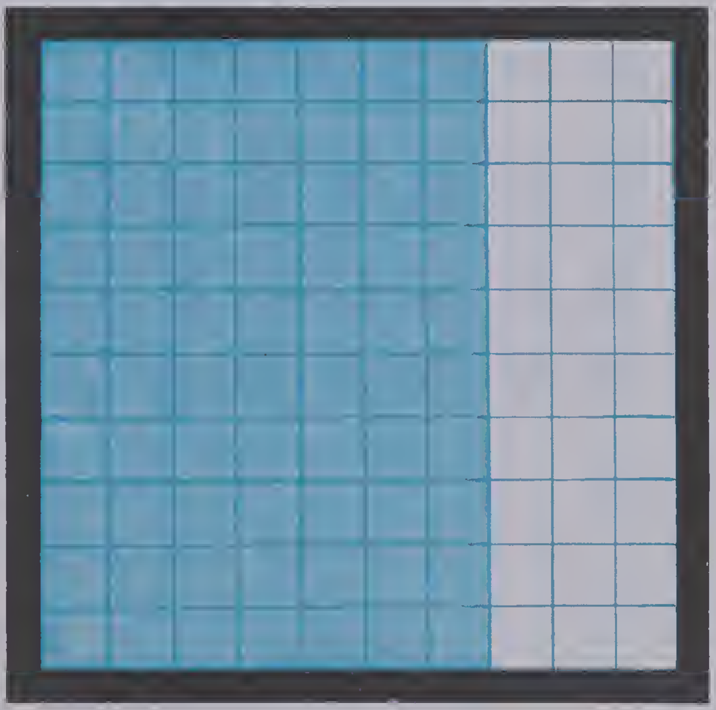
e) 

f) 

g) 

2. What facts does the graph paper show?
Use graph paper and 8-strips, 9-strips, and 10-strips to show these facts.

a) 3×10
b) $80 \div 8$
c) 6×9
d) $50 \div 10$
e) 7×8
f) $45 \div 9$
g) 6×8
h) $72 \div 9$
i) 9×10
j) $60 \div 10$
k) 3×8
l) $27 \div 9$



3. Divide.

a) $9\overline{)90}$
b) $5\overline{)45}$
c) $4\overline{)32}$
d) $8\overline{)8}$
e) $3\overline{)24}$
f) $6\overline{)60}$
g) $10\overline{)80}$
h) $7\overline{)49}$
i) $10\overline{)100}$

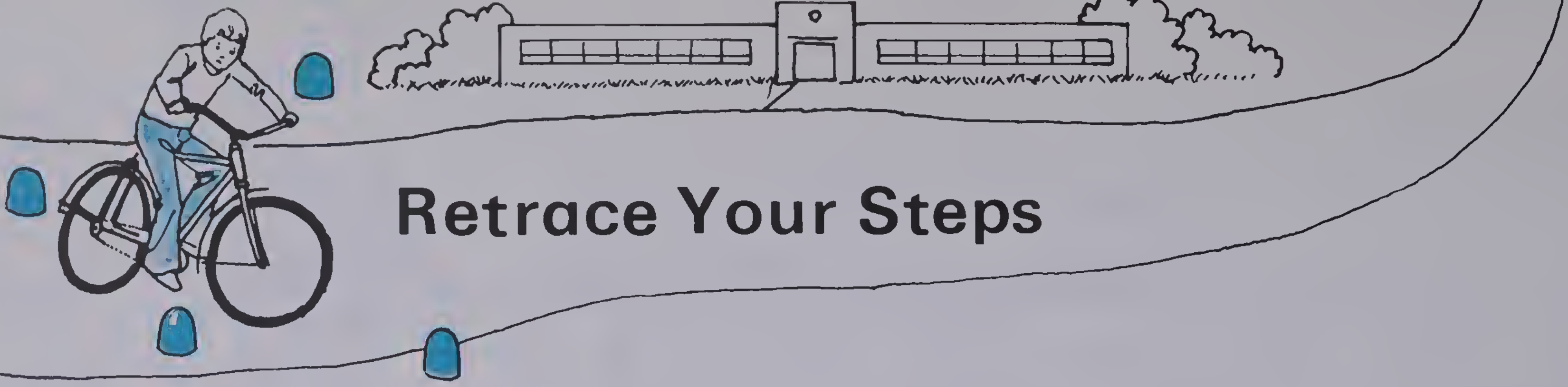
4. Multiply.

$\begin{array}{r} 8 \\ \underline{5} \end{array}$ $\begin{array}{r} 9 \\ \underline{3} \end{array}$ $\begin{array}{r} 6 \\ \underline{1} \end{array}$ $\begin{array}{r} 10 \\ \underline{6} \end{array}$ $\begin{array}{r} 9 \\ \underline{8} \end{array}$

$\begin{array}{r} 8 \\ \underline{2} \end{array}$ $\begin{array}{r} 5 \\ \underline{9} \end{array}$ $\begin{array}{r} 10 \\ \underline{2} \end{array}$ $\begin{array}{r} 7 \\ \underline{9} \end{array}$ $\begin{array}{r} 4 \\ \underline{8} \end{array}$

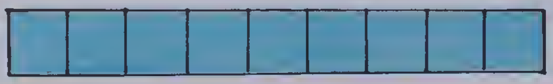
5. Solve.

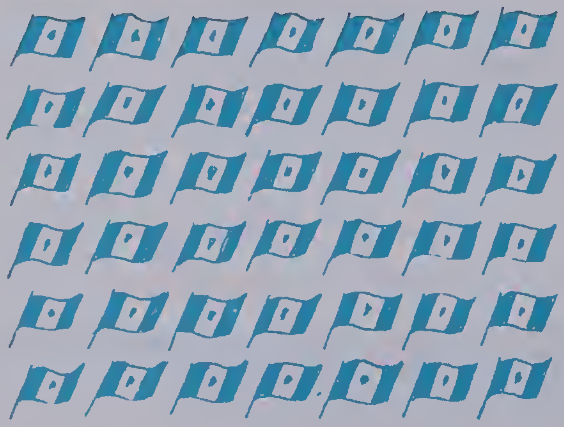
a) $a = 50 \div 5$
$a = ?$
b) $y = 9 \times 6$
$y = ?$
c) $c = 72 \div 8$
$c = ?$
d) $w = 5 \times 9$
$w = ?$
e) $d = 90 \div 10$
$d = ?$
f) $v = 7 \times 9$
$v = ?$

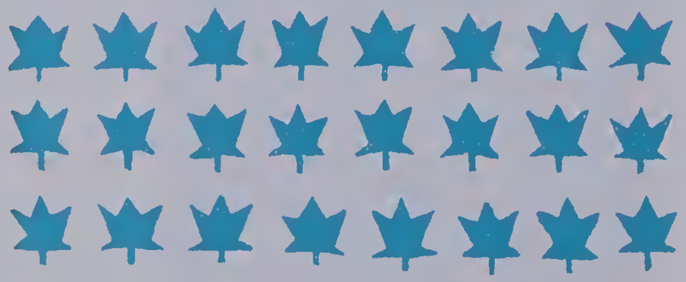


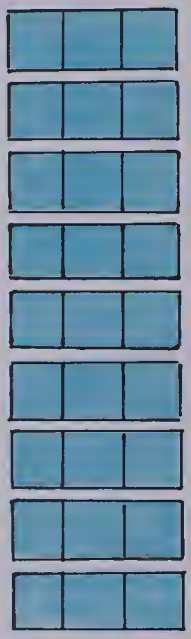
Retrace Your Steps

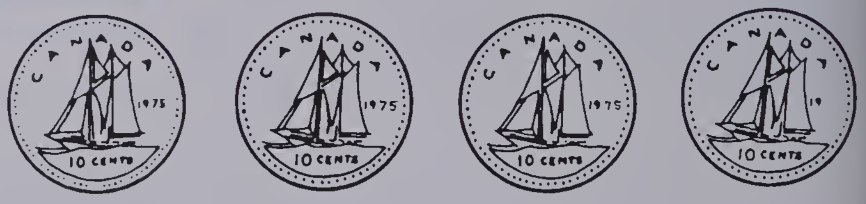
1. Write a multiplication sentence and a division sentence for each picture.

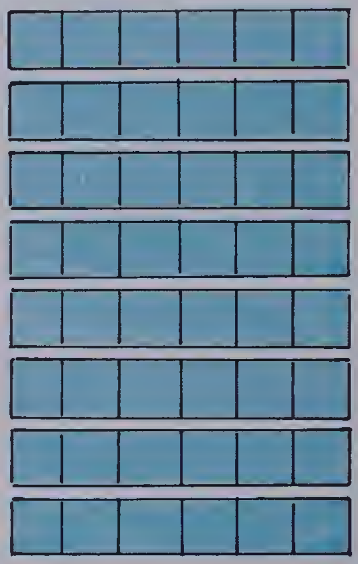
a) 

b) 

c) 

d) 

e) 

f) 

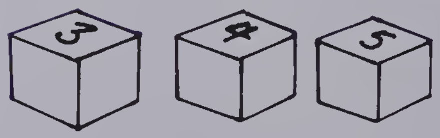
2. Multiply

a) (4, 10)
b) (9, 7)
c) (1, 8)
d) (10, 6)
e) (8, 10)
f) (9, 5)
g) (2, 7)
h) (10, 3)
i) (9, 10)

3. Divide.

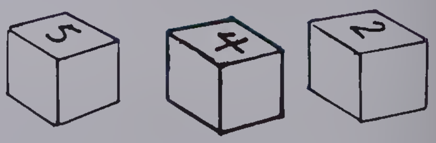
a) (100, 10)
b) (36, 4)
c) (35, 7)
d) (63, 9)
e) (48, 8)
f) (40, 10)
g) (60, 6)
h) (81, 9)
i) (40, 5)

4. Use 3 wooden cubes for dice.
Mark the faces 1 to 6, 3 to 8, and 5 to 10.
Work with 3 classmates.
Roll the dice.
Now make up a sentence using the numerals on the dice.
If you use multiplication twice, division twice, or multiplication **and** division, you score 2 points. If you can only use multiplication or division once, you score 1 point. Take turns rolling the dice.



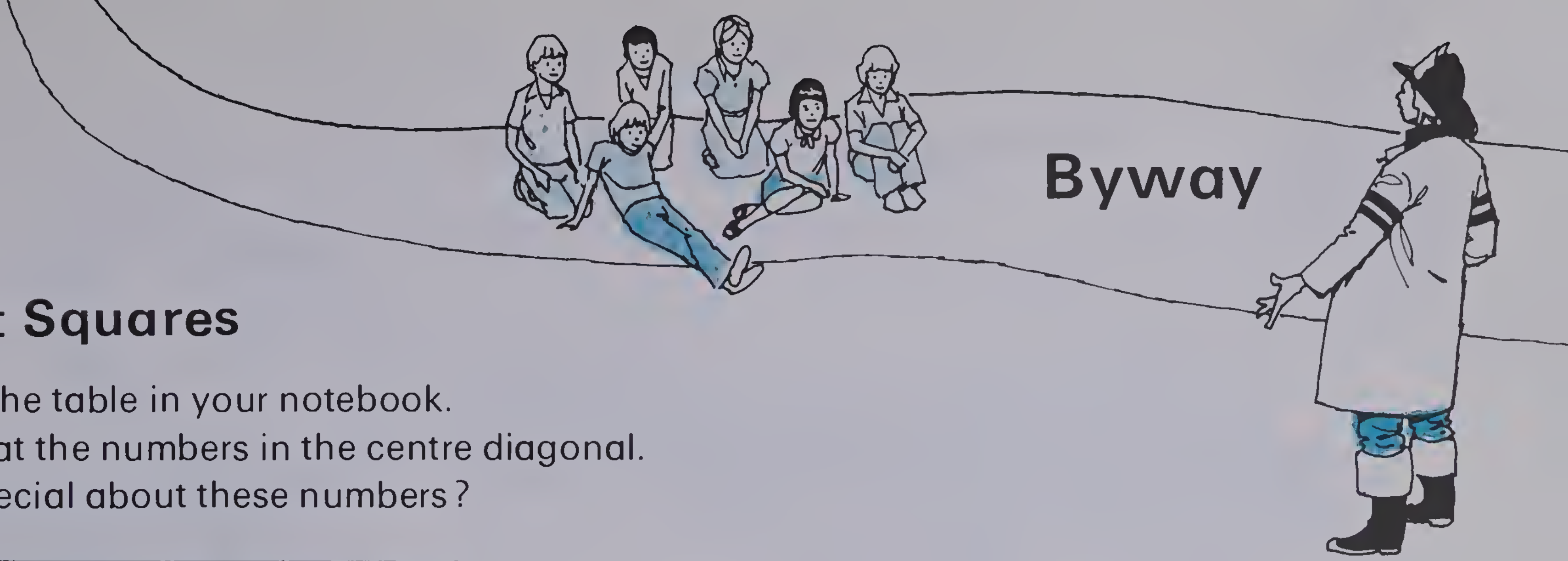
3 × 5 + 4 = 19

1 point



5 × 4 ÷ 2 = 10

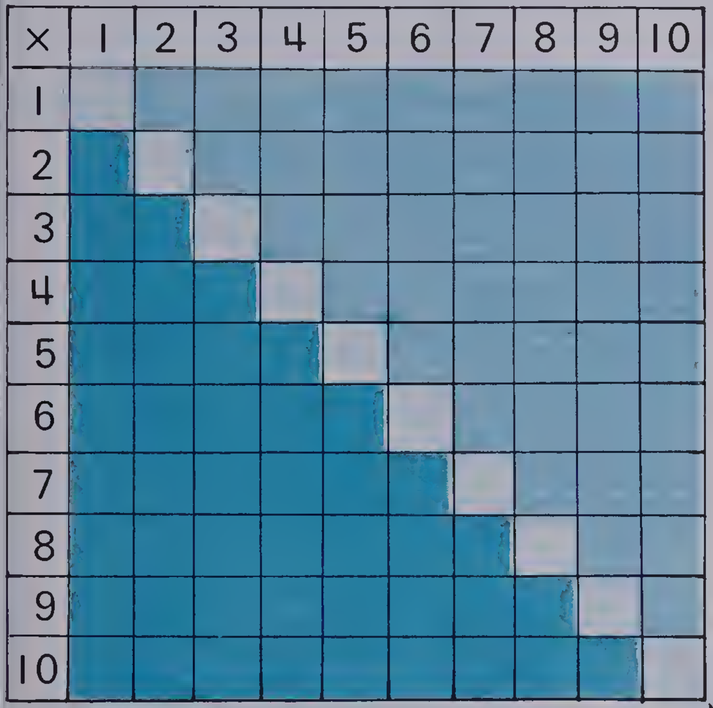
2 points



Byway

Perfect Squares

Complete the table in your notebook.
Now look at the numbers in the centre diagonal.
What is special about these numbers?



×	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

centre diagonal

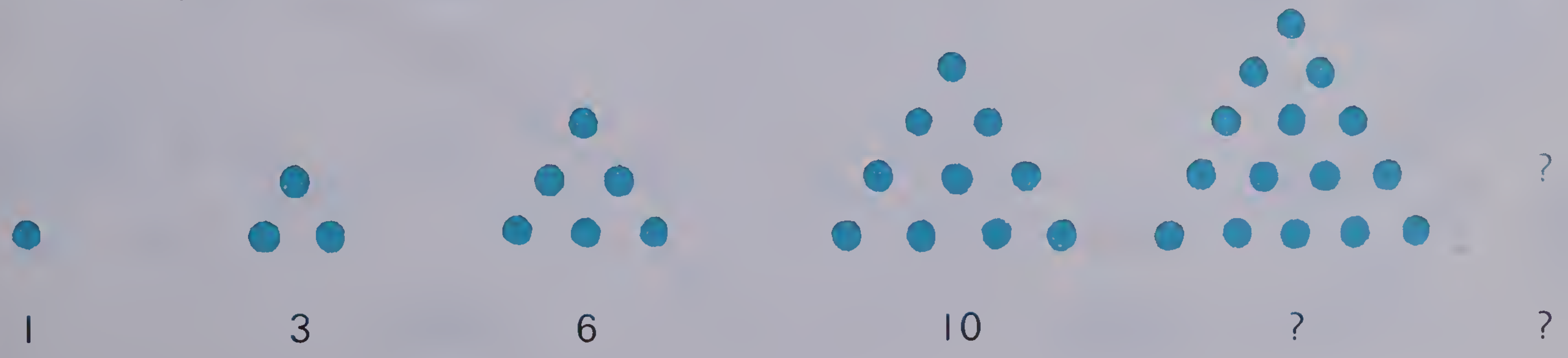
Write the multiplication facts for the numbers in the centre diagonal. How are these facts alike?

Draw arrays for five of the facts. How many rows and how many columns are in each array? How are these arrays alike?

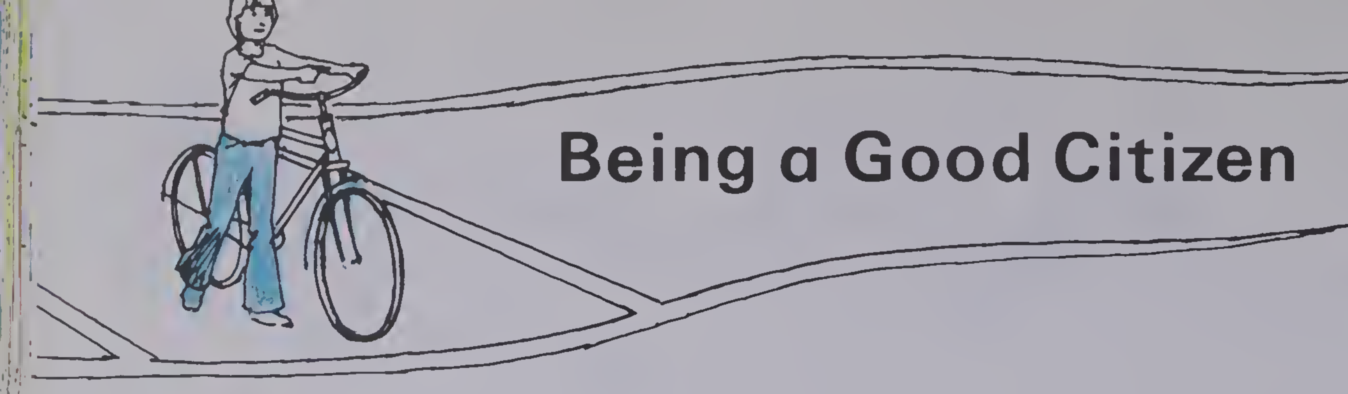
The numbers in the centre diagonal are called perfect squares. Their arrays are square. They have the same number of rows and columns.

Triangular Numbers

Continue the pattern.



Being a Good Citizen



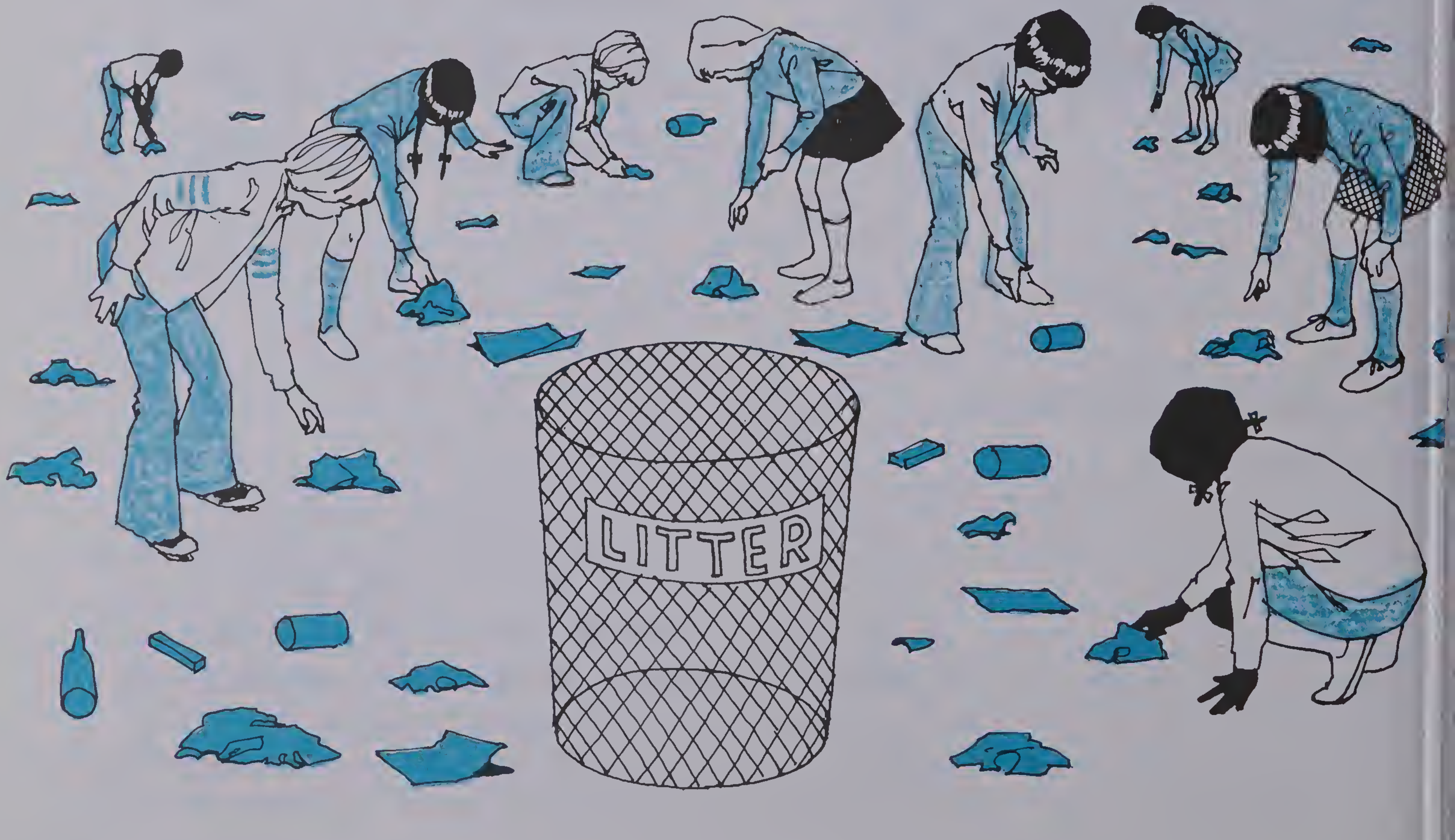
1. Arthur carried 3 bags of groceries for each of 9 people.
   How many bags of groceries did he carry?

2. On Saturday, 7 friends cleaned up the park.
   Each picked up 10 pieces of garbage.
   How many pieces of garbage did they pick up?

3. Belinda shovelled snow for her neighbours.
   She shovelled 16 sidewalks in 8 days.
   If she shovelled the same number of sidewalks each day, how many sidewalks did she shovel in 1 day?

4. At the crosswalk, the children waited for some cars to pass before the crossing guard helped them cross the street.
   They waited for 5 groups of 7 cars to pass.
   How many cars passed the children?

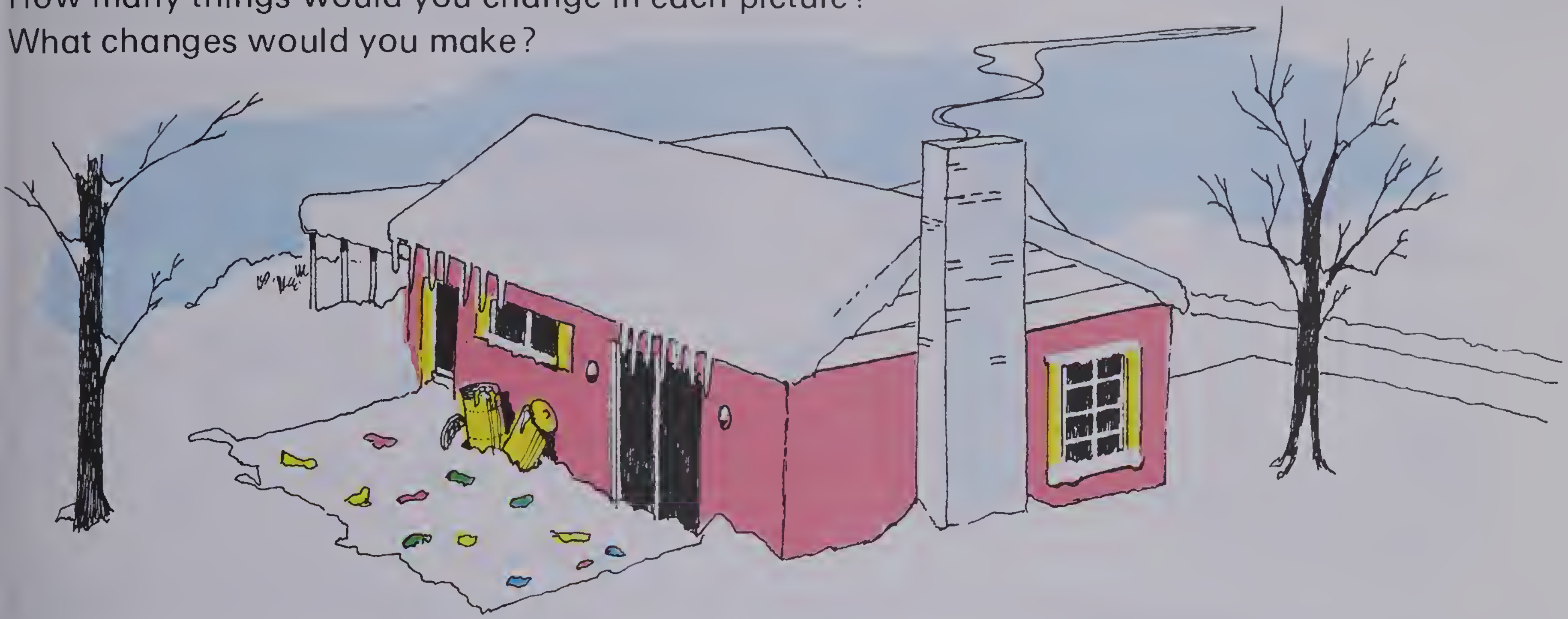
5. Write a story about the picture.



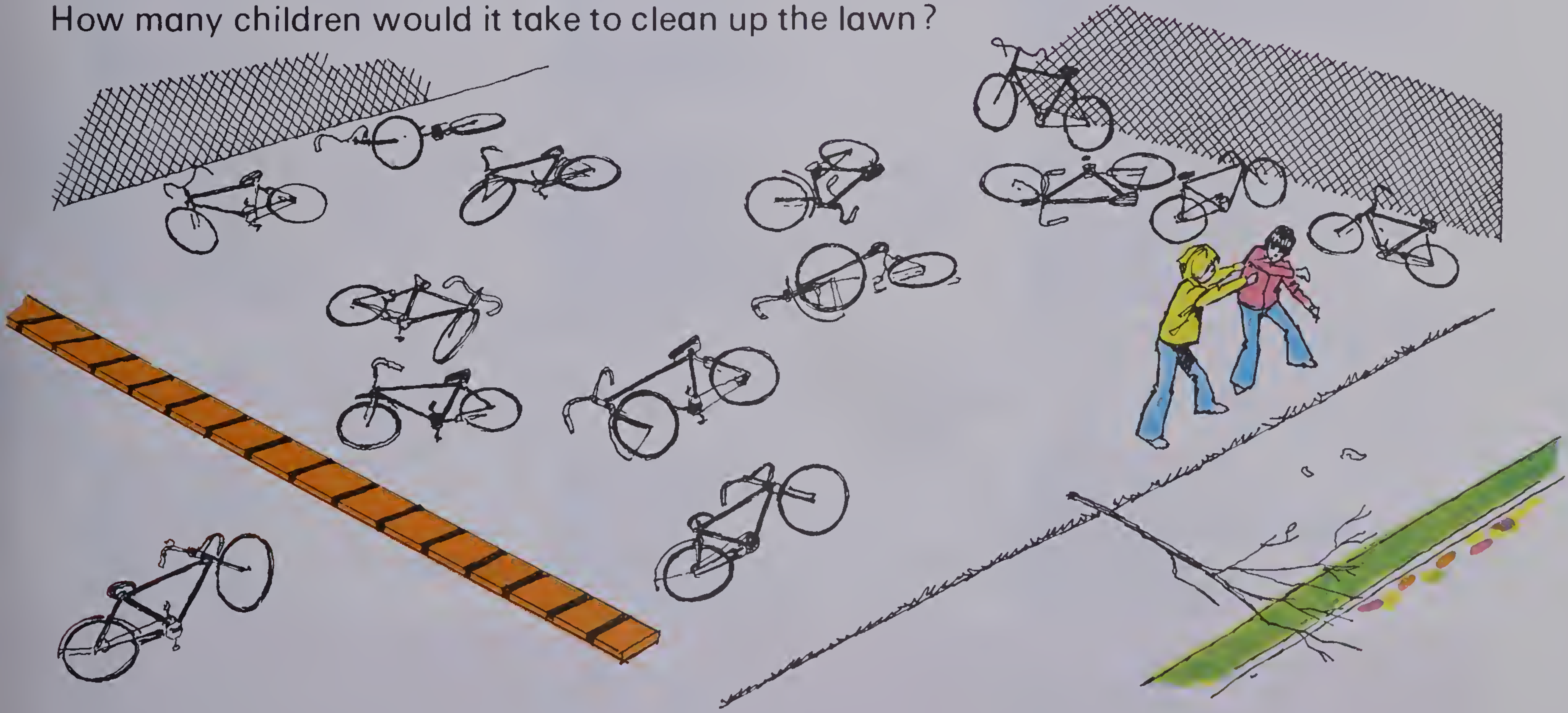
Keep Canada Safe and Beautiful

A good citizen helps keep Canada safe and beautiful all year long.

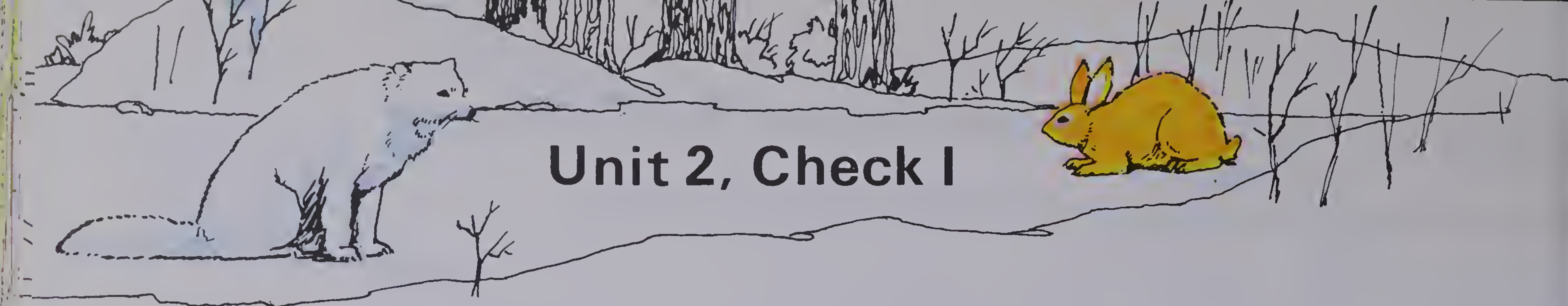
How many things would you change in each picture?
What changes would you make?



1. How many icicles are hanging from the roof of the house?
2. If several children picked up 3 pieces of litter each. How many children would it take to clean up the lawn?



3. If 2 children each put the same number of bicycles in the school bicycle rack, how many bicycles would each child pick up?



Unit 2, Check I

List your answers. Check your own work. The answers are at the bottom of the page.

1. Write the numerals.

a) 300 + 40 + 7
b) 2 hundreds, 4 tens, and 6
c) 100 + 50 + 9
d) 500 + 0 + 8
e) 6 hundreds, 0 tens, and 3
f) 400 + 30 + 0

2. a) 777 is a 3-digit number.
What does it mean to you?
b) Write the 3-digit numerals
between 322 and 333.

3. Add. Think the answers.

a)	b)	c)	d)
22	43	325	224
33	26	473	655

4. Subtract. Think the answers.

a)	b)	c)	d)
67	58	674	785
24	36	253	563

5. Add.

a)	b)	c)	d)
58	45	29	36
27	39	68	55

6. Subtract.

a)	b)	c)	d)
75	94	42	53
29	38	17	29

7. Add.

a)	b)	c)	d)
149	524	358	263
236	147	416	629

8. Subtract.

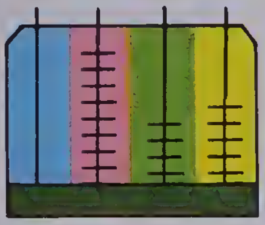
a)	b)	c)	d)
681	960	836	527
329	247	418	109

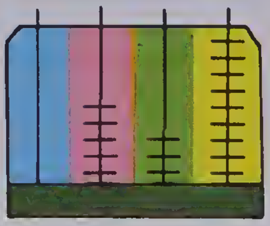
Are you pleased with your work?
Questions 3 and 4, page 155, are for practising addition and subtraction.

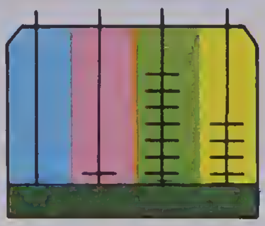
1. a) 347 b) 246 c) 159 d) 508 e) 603 f) 430
2. a) 7 hundreds, 7 tens, and 7
b) 323, 324, 325, 326, 327, 328, 329, 330, 331, 332
3. a) 55 b) 69 c) 798 d) 879
4. a) 43 b) 22 c) 421 d) 222
5. a) 85 b) 84 c) 97 d) 91
6. a) 46 b) 56 c) 25 d) 24
7. a) 385 b) 671 c) 774 d) 892
8. a) 352 b) 713 c) 418 d) 418

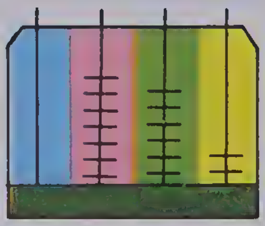
Practice I

1. What number does each abacus show? I yellow disk means I.

a) 

b) 

c) 

d) 

2. Write each number 2 ways.

a) 592
5 hundreds, ? tens and ?
? + 90 + ?

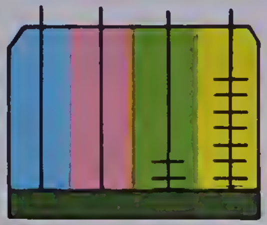
b) 256
c) 903
d) 417

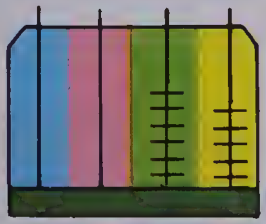
e) 880
f) 364
g) 735

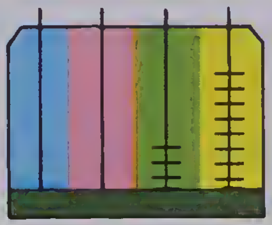
h) 629
i) 171
j) 448

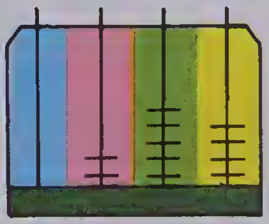
k) 903
l) 210
m) 556

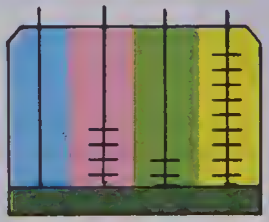
3. Add the number beside the abacus to the number shown on the abacus.

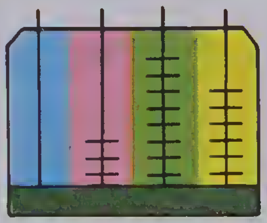
a)  56

b)  17

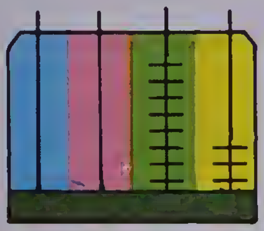
c)  49

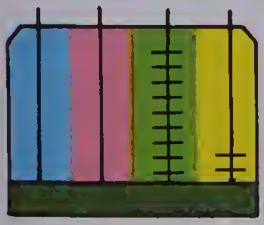
d)  718

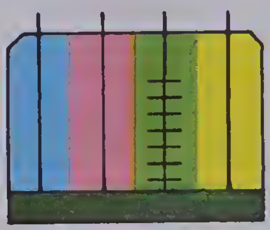
e)  143

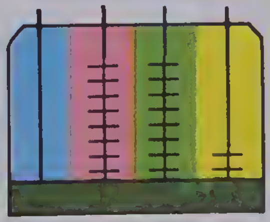
f)  607

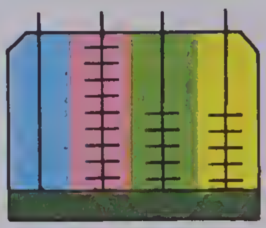
4. Subtract the number beside the abacus from the number shown on the abacus.

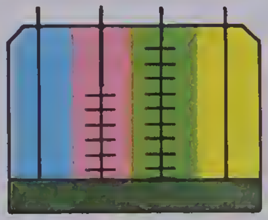
a)  48

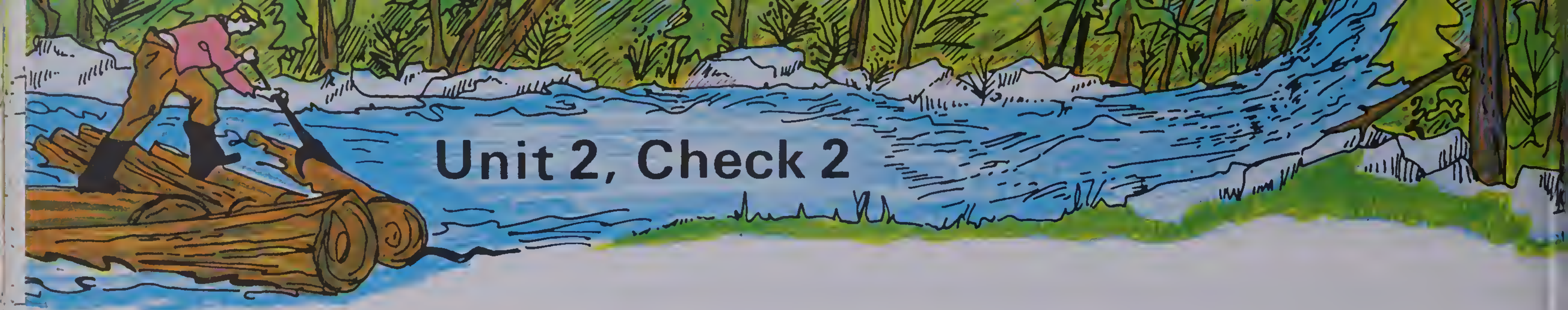
b)  64

c)  31

d)  427

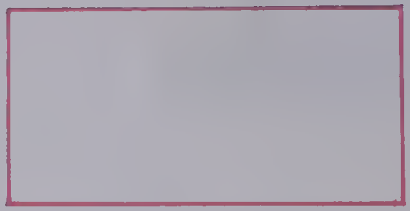
e)  509

f)  366



Unit 2, Check 2

Check your own work. The answers are at the bottom of the page.

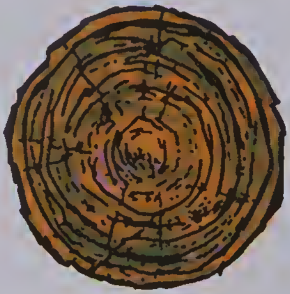


1. a) Trace the rectangle.
   Draw a line inside the rectangle to make a triangle.

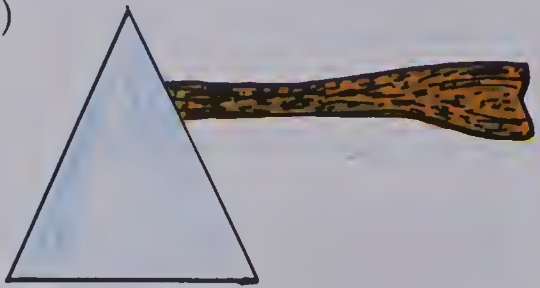
   b) Trace the rectangle again.
   Draw a line to make a square.

2. What shapes do you see?

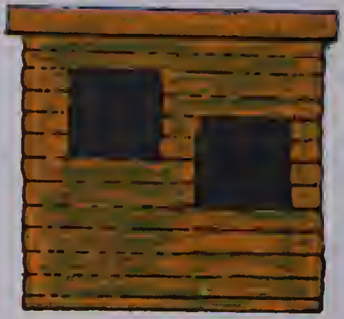
a)



b)



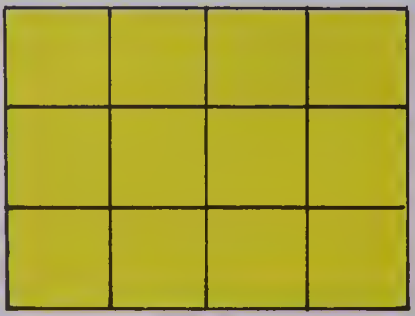
c)



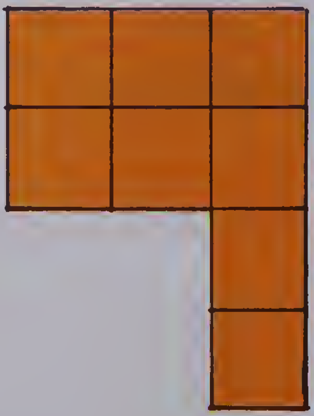
Do you know the geometric figures well enough?
Questions 1 and 2, page 157, will give you more practice.

3. Find the areas in square centimetres.

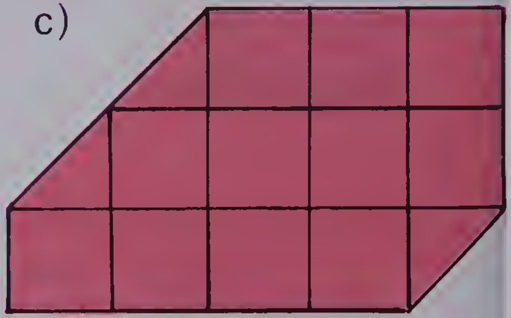
a)



b)

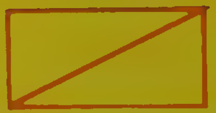


c)

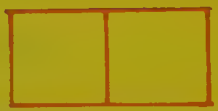


See page 157 if you need extra practice.

1. a)

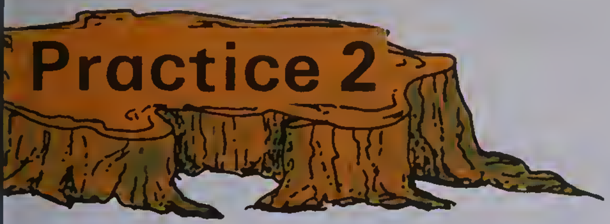


b)



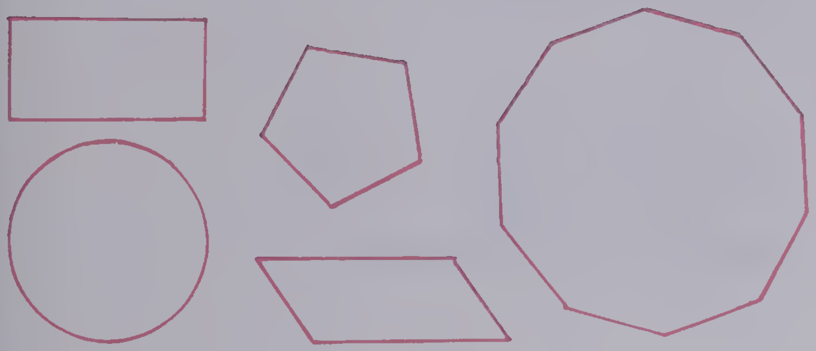
2. a) circle
   b) triangle
   c) square

3. a) 12 cm^2 b) 8 cm^2 c) 12.5 cm^2

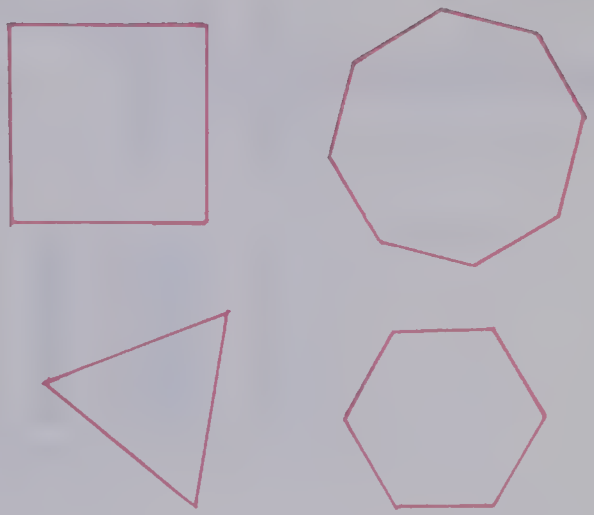


Practice 2

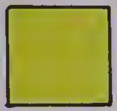
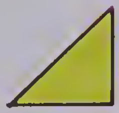
1. Match each figure with its name.
Trace the shapes.
Print the names.

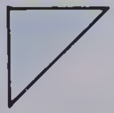
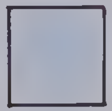


pentagon
circle
decagon
rectangle
hexagon
triangle
parallelogram
octagon
square



2. Draw a picture using several geometric figures.
(You can trace the figures in Question 1.)
Outline each kind of figure in a different colour.
What figures did you use?

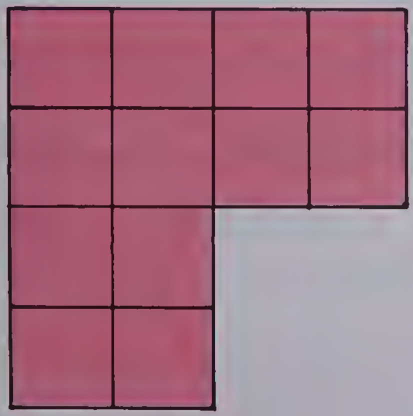
3. a) If the area of  is 1 cm^2, what is the area of  ?

b) How many of  make  ?

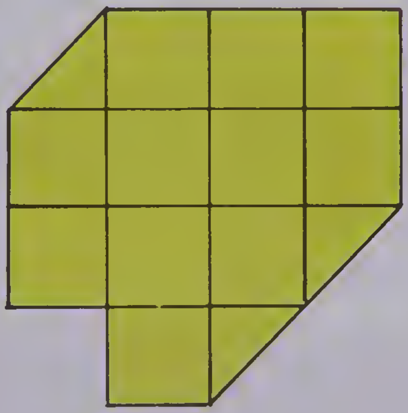
Write the addition sentence using decimals.

4. Find the area of each shape.

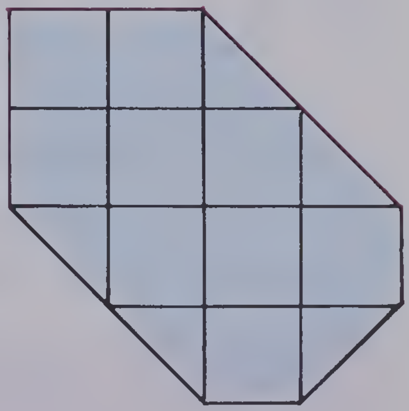
a)



b)



c)



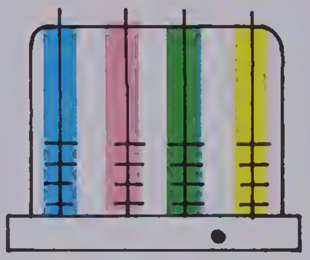
5. Use paper marked into 1 cm squares.
Draw shapes like those in Question 4.
Colour the shapes.
Find the areas of your shapes.

Unit 2, Check 3

Think about each question. Write your answer. Check your own work.

1. Complete.

a)



4 4 4 . 4

4 hundreds, 4 ?, ?, 4 tenths

? + 40 + ? + 0.4

b) I green disc = ? yellow discs
I red disc = ? green discs
I blue disc = ? red discs

2. What are the numbers?

a) 200 + 10 + 4 + 0.2
b) 500 + 30 + 6 + 0.4
c) 600 + 70 + 7 + 0.7
d) 400 + 20 + 8 + 0.3
e) 100 + 50 + 3 + 0.6
f) 800 + 90 + 1 + 0.9

3. Add.

a)	b)	c)	d)	e)	f)	g)	h)
0.1	0.2	0.1	0.5	0.5	0.2	0.3	0.1
0.2	0.3	0.6	0.2	0.3	0.3	0.3	0.4
					0.1	0.3	0.3

4. Subtract.

a)	b)	c)	d)	e)	f)	g)	h)
0.4	0.8	0.5	0.6	0.9	0.7	0.8	0.9
0.3	0.6	0.2	0.3	0.7	0.6	0.2	0.3

5. Add. Think the answer and write it.

a) (0.3, 0.1) c) (0.2, 0.5) e) (0.2, 0.7)
b) (0.4, 0.1) d) (0.8, 0.1) f) (0.6, 0.2)

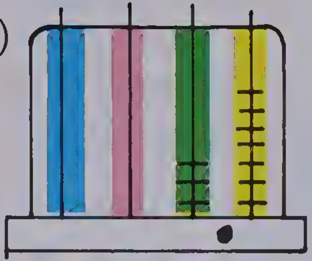
6. Subtract. Think the answer and write it.

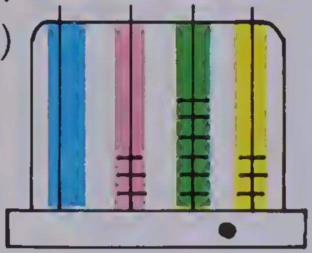
a) (0.4, 0.2) c) (0.5, 0.1) e) (0.9, 0.5)
b) (0.7, 0.3) d) (0.8, 0.1) f) (0.7, 0.7)

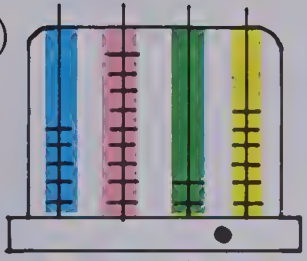
1. a) 4 hundreds, 4 tens, 4, and 4 tenths b) 10, 10, 10
400 + 40 + 4 + 0.4
2. a) 214.2 b) 536.4 c) 677.7 d) 428.3 e) 153.6 f) 891.9
3. a) 0.3 b) 0.5 c) 0.7 d) 0.7 e) 0.8 f) 0.6 g) 0.9 h) 0.8
4. a) 0.1 b) 0.2 c) 0.3 d) 0.3 e) 0.2 f) 0.1 g) 0.6 h) 0.6
5. a) 0.4 b) 0.5 c) 0.7 d) 0.9 e) 0.9 f) 0.8
6. a) 0.2 b) 0.4 c) 0.4 d) 0.7 e) 0.4 f) 0

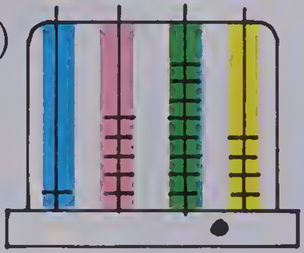
Practice 3

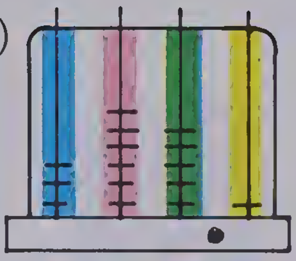
1. Write the numerals.

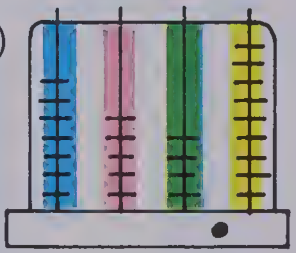
a) 

b) 

c) 

d) 

e) 

f) 

2. Write the meaning of each number.

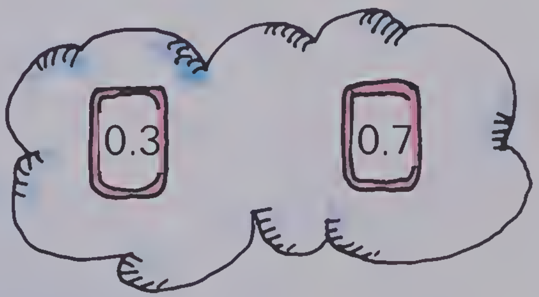
a) 9.6 b) 67.3 c) 621.5 d) 480.2 e) 873.5 f) 216.8

3. Add.

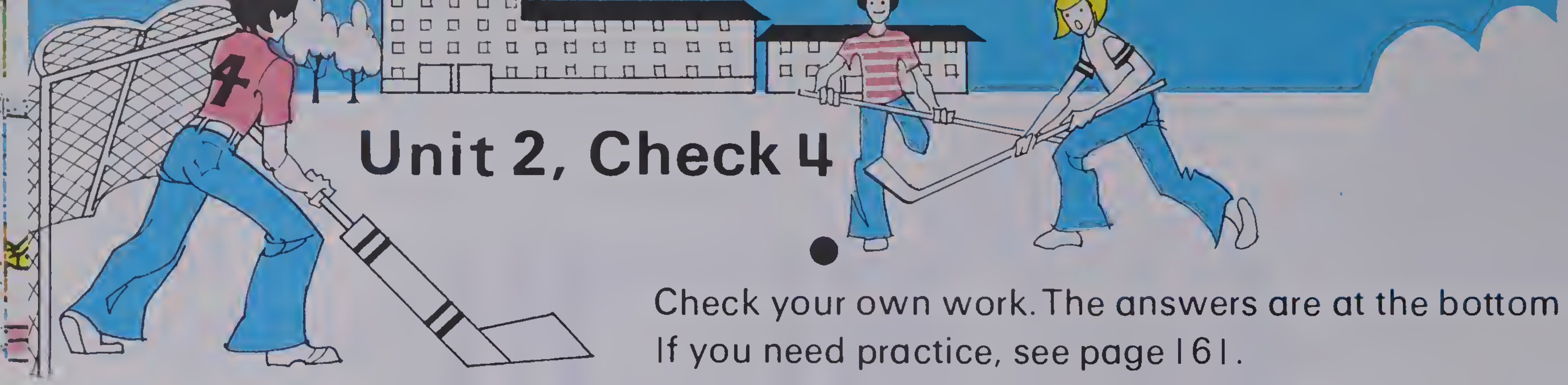
a) (0.7, 0.2) b) (0.4, 0.3) c) (0.8, 0.1) d) (0.4, 0.2)

4. Use the number pairs in Question 3. Subtract.

Make 1



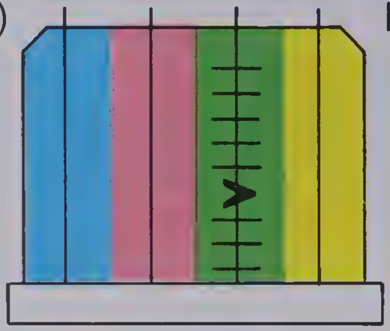
Play this game with 3 other people.
Make a set of 20 cards—2 cards for each of the numbers 0.1, 0.2, 0.3, 0.4, 0.6, 0.7, 0.8, 0.9, and 4 cards for 0.5.
Shuffle the cards.
Deal 3 cards to each player.
Put the remaining cards in the centre of your group.
Ask one of the players for a card that will "Make 1" with a card in your hand.
If the player has that card, you add it to the card in your hand and put the pair of cards on the table.
If the player doesn't have that card, you take a card from the centre pile.
Take turns asking for cards.
The player to "Make 1" most often wins.

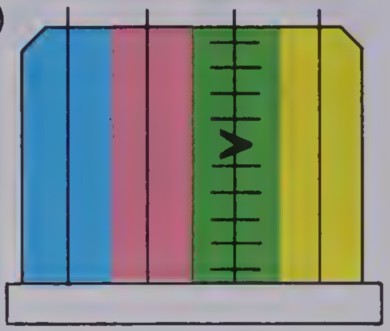


Unit 2, Check 4

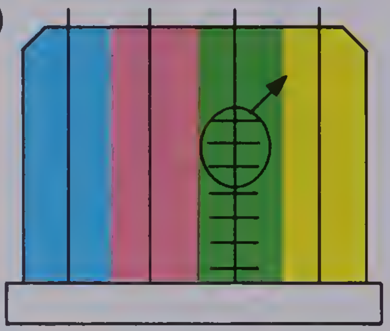
Check your own work. The answers are at the bottom of the page. If you need practice, see page 161.

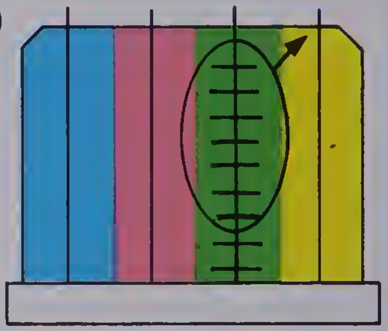
1. How many tens?
Write the numerals. Add.

a)


b)


2. How many tens?
Write the numerals. Subtract.

a)


b)


3. Add.

a) 40
30

b) 50
20

c) 60
30

d) 70
10

e) 80
10

f) 20
40

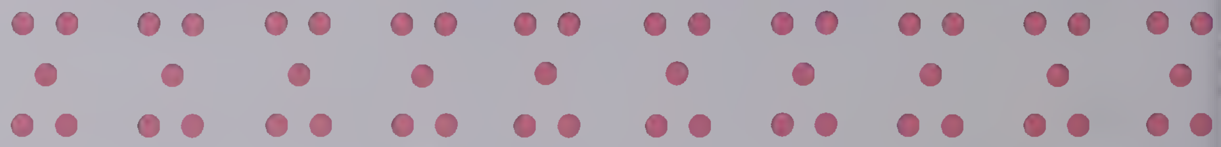
4. Subtract.

a) 70
30

b) 80
40

c) 90
20

d) 60
40

5.


a) How many sets of 5?
How many ●'s?
Complete the pattern.

10 × 5 = ?
10 × 4 = ?
⋮
10 × 1 = ?

Think about the pattern.

Complete.

10 × 9 = ?
⋮
10 × 5 = ?

b) How many ●'s?
How many in each set?
Complete the pattern.

50 ÷ 10 = ?
40 ÷ 10 = ?
⋮
10 ÷ 10 = ?

Think about the pattern.

Complete.

90 ÷ 10 = ?
⋮
50 ÷ 10 = ?

1. 30 + 40 = 70, 50 + 40 = 90
2. 70 − 30 = 40, 90 − 70 = 20

3. a) 70 b) 70 c) 90 d) 80 e) 90 f) 60

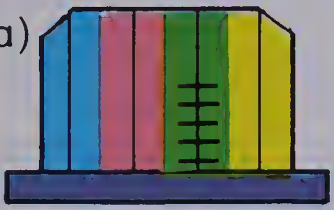
4. a) 40 b) 40 c) 70 d) 20

5. a) 50, 40, 30, 20, 10
90, 80, 70, 60, 50
b) 5, 4, 3, 2, 1
9, 8, 7, 6, 5

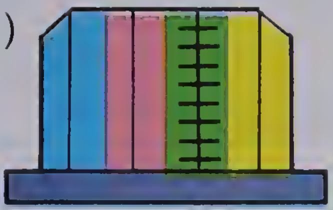
Practice 4

1. Count by tens.
   What is the number?

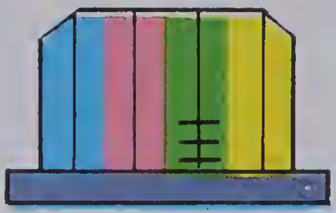
a)



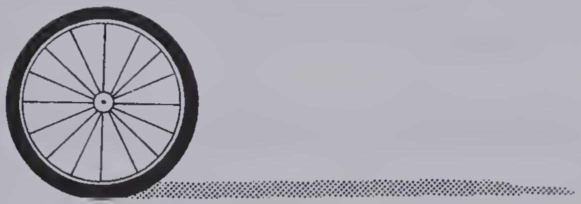
b)



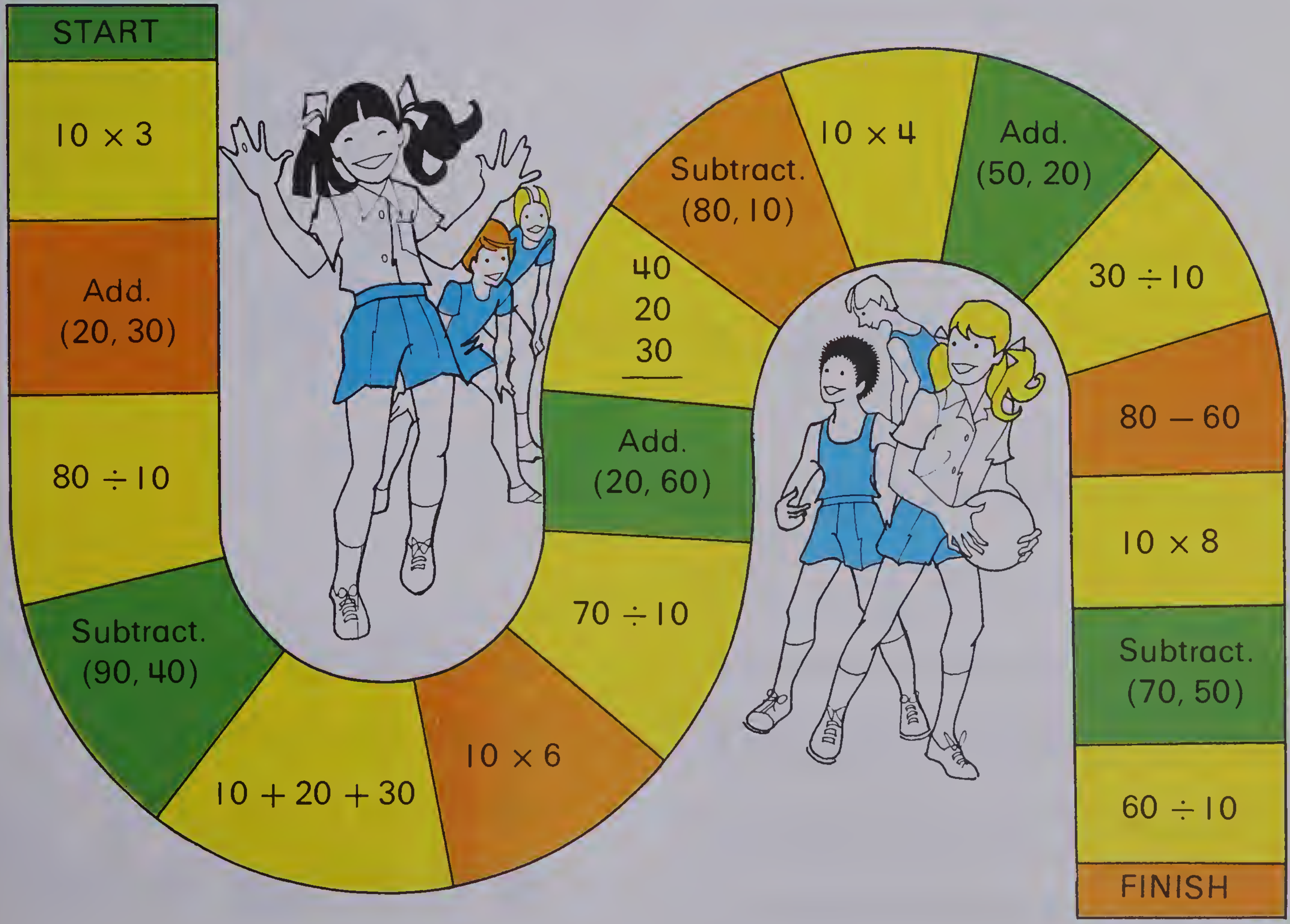
c)



2. The distance around the wheel is 2 m.
   How far along the ground does it roll in 10 turns?
   Write the multiplication sentence.



3. Follow the trail.
   Write the answers in a row in your notebook.



START

10 × 3

Add.
(20, 30)

80 ÷ 10

Subtract.
(90, 40)

10 + 20 + 30

10 × 6

70 ÷ 10

Add.
(20, 60)

$$\begin{array}{r} 40 \\ 20 \\ 30 \\ \hline \end{array}$$

Subtract.
(80, 10)

10 × 4

Add.
(50, 20)

30 ÷ 10

80 − 60

10 × 8

Subtract.
(70, 50)

60 ÷ 10

FINISH

Unit 2, Check 5

Check your own work.
The complete table is at the bottom of the page.
Extra practice is on page 163.

Do you know the multiplication and division facts well enough?
There are only 55 facts.

1. Complete the centre diagonal pattern.

   ? × ? = 1   1 ÷ 1 = ?
   ? × ? = 4   4 ÷ 2 = ?

2. Complete the pattern for diagonal **A**.

   ? × ? = 2   2 ÷ 1 = ?
   ? × ? = 6   6 ÷ 2 = ?

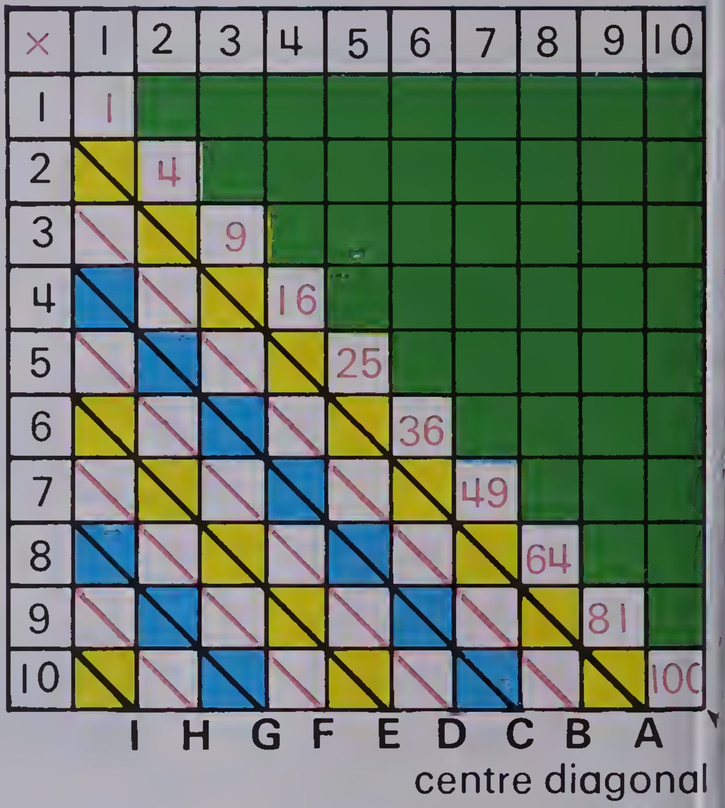
3. Complete the pattern for diagonal **B**.

   ? × ? = 3   3 ÷ 1 = ?

4. Complete the pattern for diagonal **C**.

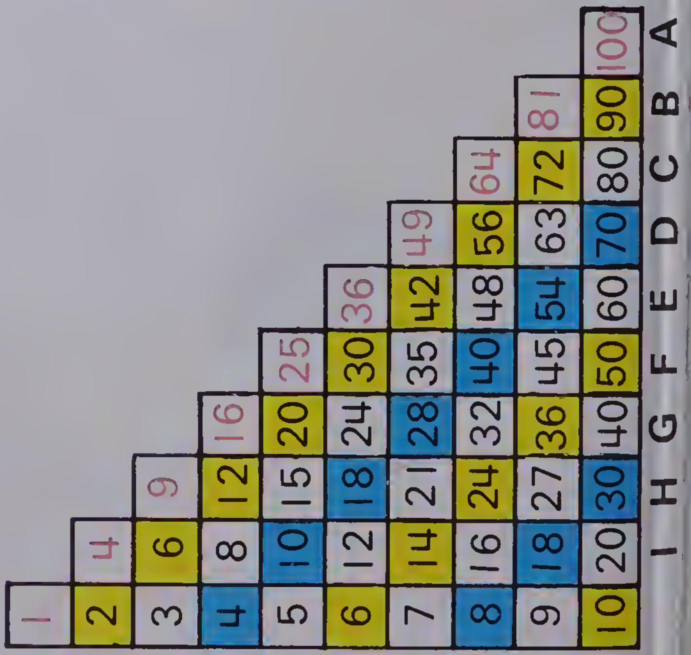
   ? × ? = 4   4 ÷ 1 = ?

5. Complete the pattern for diagonal **D**.
6. Complete the pattern for diagonal **E**.
7. Complete the pattern for diagonal **F**.
8. Complete the pattern for diagonal **G**.
9. Complete the pattern for diagonal **H**.
10. Complete the pattern for diagonal **I**.



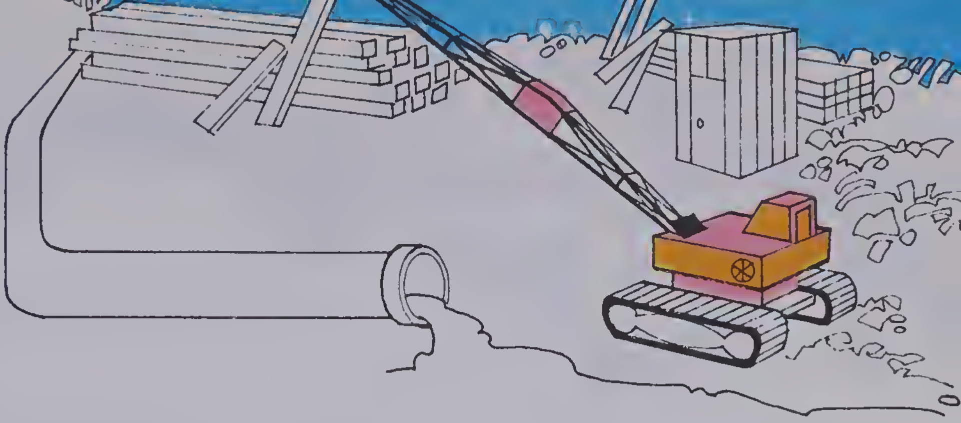
×	1	2	3	4	5	6	7	8	9	10
1	1									
2		4								
3			9							
4				16						
5					25					
6						36				
7							49			
8								64		
9									81	
10										100

I H G F E D C B A
centre diagonal

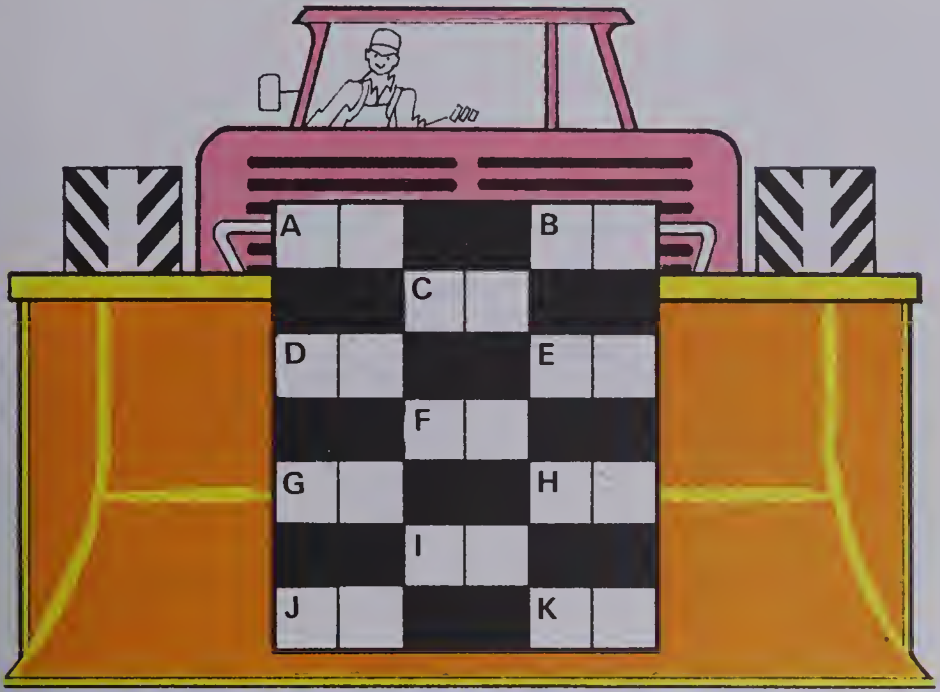


									100	A
								81	90	B
							64	72	80	C
						49	56	63	70	D
					36	42	48	54	60	E
				25	30	35	40	45	50	F
			16	20	24	28	32	36	40	G
		9	12	15	18	21	24	27	30	H
	4	6	8	10	12	14	16	18	20	I
1	2	3	4	5	6	7	8	9	10	

Practice 5

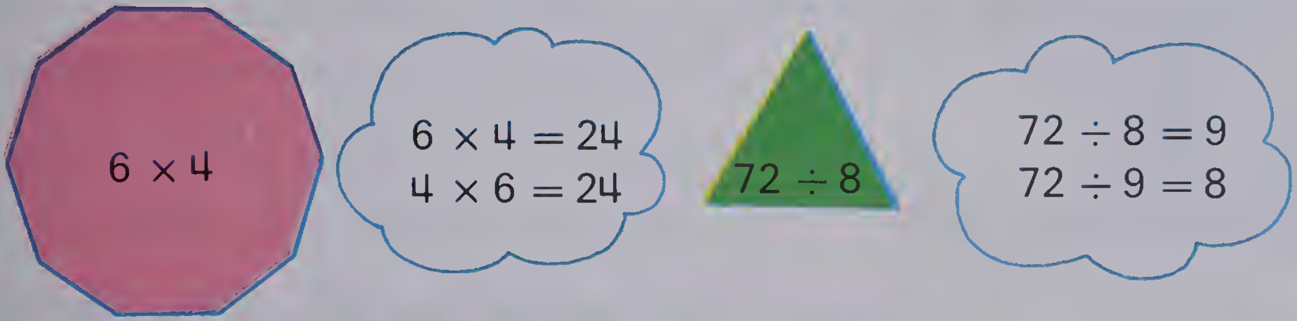


1. Complete the puzzle in your notebook.



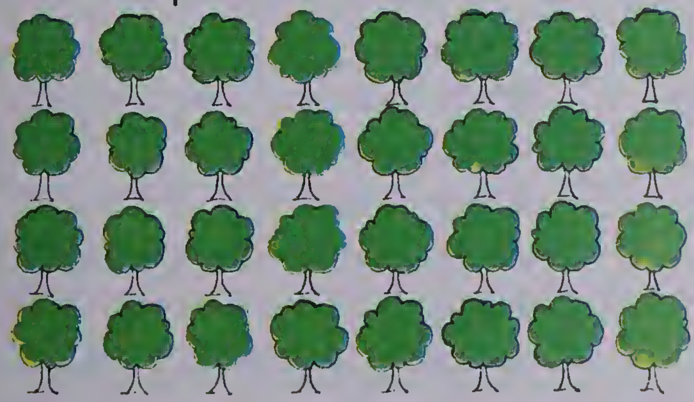
A 90 ÷ 9
B 5 × 6
C 9 × 2
D ? ÷ 9 = 8
E 50 ÷ 5
F 9 × 6
G ? ÷ 7 = 10
H 4 × 7
I 9 × 4
J ? ÷ 8 = 10
K ? ÷ 9 = 3

2. Cut out 4 different geometric shapes.
Write a multiplication question on one side of each shape.
Write a division question on the other side.
Work with someone in your group.
Exchange shapes.
Write the answers to the questions.
Write the other multiplication or division sentence for the same fact.

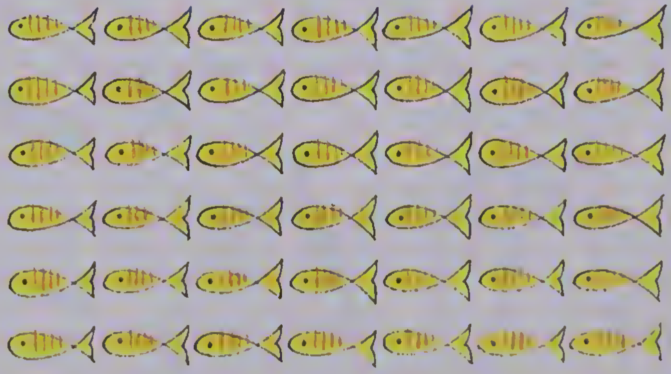


3. Write 2 multiplication sentences and 2 division sentences for each array.

a)



b)

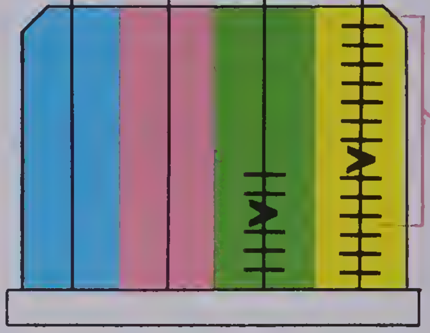


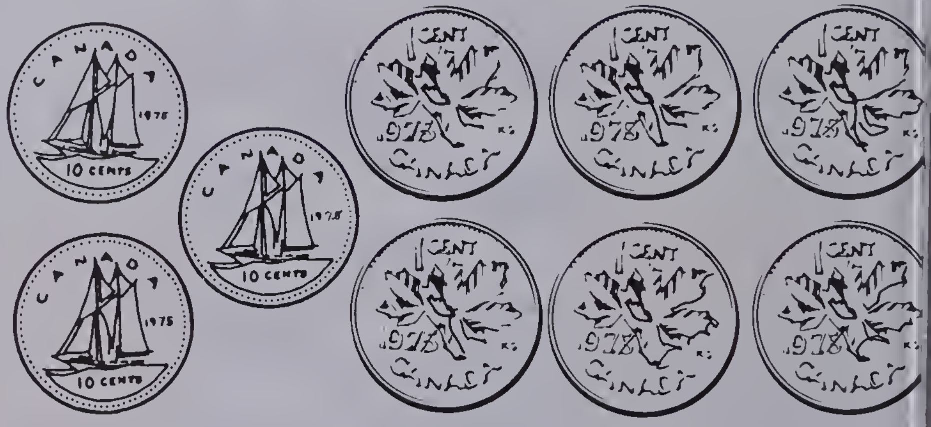
Exchanging 10 for 1 ten

How many dimes and how many pennies are there ?
Exchange 10 pennies for 1 dime.
How many dimes and how many pennies are there now ?

Add on the abacus.

$$\begin{array}{rcl} 36 & = & 30 + 6 \\ 27 & = & 20 + 7 \\ \hline & & 50 + 13 \end{array}$$



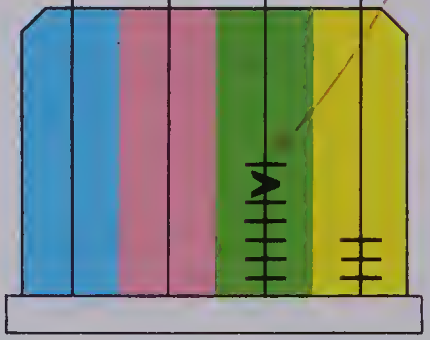


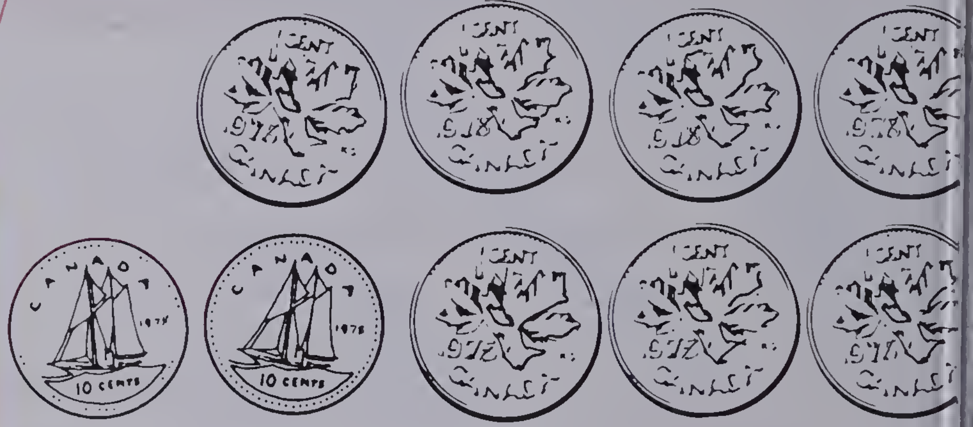
3 dimes

6 pennies

Exchange 10 yellow discs for 1 green disc.

$$\begin{array}{rcl} 36 & = & 30 + 6 \\ 27 & = & 20 + 7 \\ \hline & & 50 + 10 + 3 \\ 63 & = & 60 + 3 \end{array}$$





2 dimes

7 pennies

We can add without using the long form.
Add.

$$\begin{array}{r} 48 \\ 27 \\ \hline 75 \end{array}$$

Think 15.
Write 5 under the ones column.
Remember 1.
Think 3, 7.
Write 7 under the tens column.

Add.

$$\begin{array}{r} 514 \\ 369 \\ \hline 883 \end{array}$$

Think 13.
Write 3 under the ones column.
Remember 1.
Think 7, 8.
Write 8 under the tens column.
Think 8.
Write 8 under the hundreds column

In Action

1. Add.

a) $\begin{array}{r}56\\18\\\hline\end{array}$

Think 14.
Write 4 in the ones column.
Remember 1.
Think 2, 7.
Write 7 in the tens column.

b) $\begin{array}{r}75\\19\\\hline\end{array}$

c) $\begin{array}{r}43\\38\\\hline\end{array}$

d) $\begin{array}{r}57\\25\\\hline\end{array}$

e) $\begin{array}{r}64\\26\\\hline\end{array}$

f) $\begin{array}{r}49\\34\\\hline\end{array}$

g) $\begin{array}{r}51\\19\\\hline\end{array}$

h) $\begin{array}{r}743\\137\\\hline\end{array}$

i) $\begin{array}{r}262\\418\\\hline\end{array}$

j) $\begin{array}{r}678\\305\\\hline\end{array}$

k) $\begin{array}{r}253\\529\\\hline\end{array}$

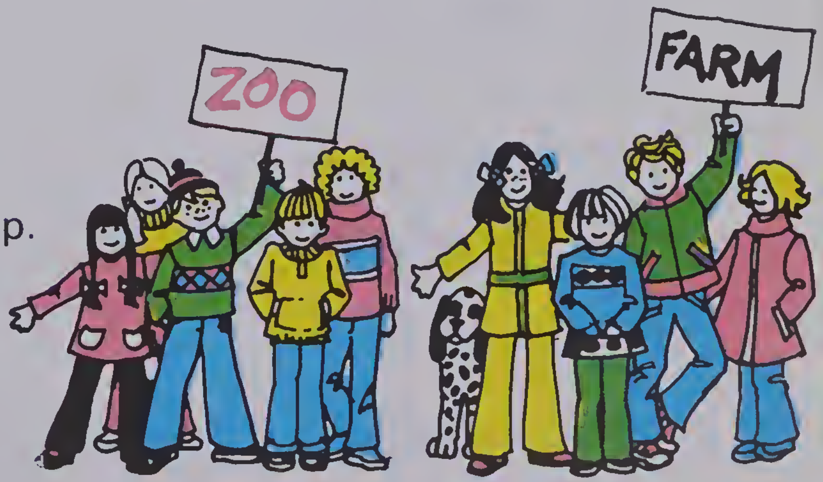
l) $\begin{array}{r}477\\106\\\hline\end{array}$

m) $\begin{array}{r}636\\245\\\hline\end{array}$

2. David had 5 dimes and 2 pennies.
Ellen had 3 dimes and 9 pennies.
How much money did they have altogether?

3. Heidi wants to buy a puzzle that costs 28¢,
and a toy airplane that costs 45¢.
How much money does she need?

4. The students in the Grade 3 class voted for their field trip.
14 children voted to go to the zoo.
27 children voted to go to the farm.
a) Where will the class go on its field trip?
b) How many children are in the class?



5. Henrietta had 3 dollar bills, 6 dimes, and 4 pennies.
Iswan had 5 dollar bills, 1 dime, and 6 pennies.
How much money did they have altogether?

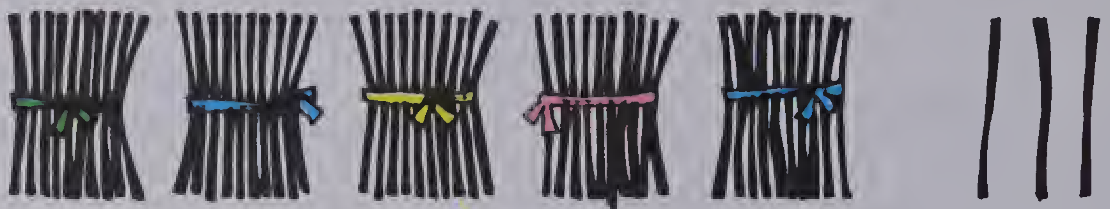
6. All the school children voted for their favourite zoo animal.
The tiger got 235 votes.
The polar bear got 157 votes.
a) Which animal was the favourite?
b) How many children voted?

7. Johnson Public School has 483 pupils.
Kendal Public School has 309 pupils.
How many pupils do the schools have?

Exchanging 1 ten for 10

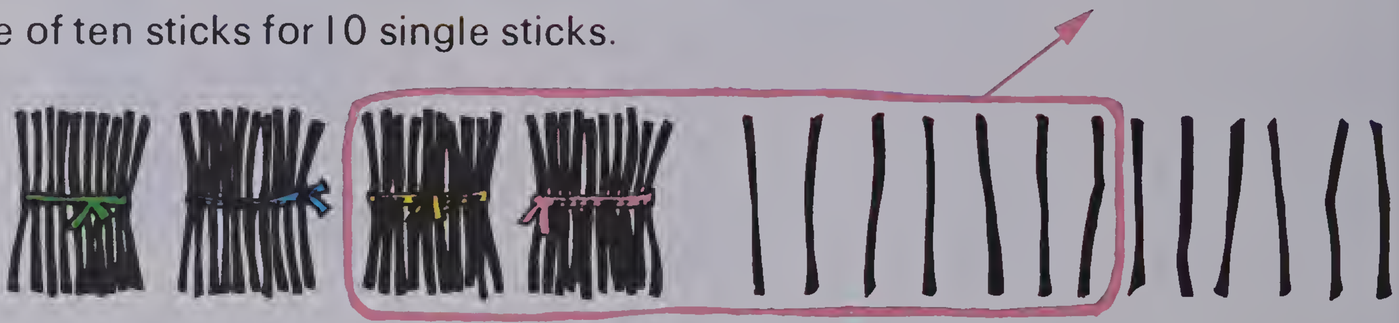
Subtract.

53 = 50 + 3
27 = 20 + 7



Can we subtract 7 ones from 3 ones?
Exchange 1 bundle of ten sticks for 10 single sticks.

53 = 40 + 13
27 = 20 + 7
26 = 20 + 6



Now try this one.
Subtract.

894 = 800 + 90 + 4
648 = 600 + 40 + 8

Exchange 1 bundle of 10 sticks for 10 single sticks.

894 = 800 + ? + ?
648 = 600 + ? + ?
? = ? + ? + ?

In Action

1. Subtract. Use the long form.

a) 91 = 80 + ?
66 = 60 + 6

b) 83 = 70 + ?
45 = ? + ?

c) 80
16

d) 73
55

e) 91
64

f) 84
28

g) 62
39

h) 90
72

i) 980
152

j) 793
284

k) 870
431

l) 961
615

m) 742
506

n) 881
379

2. Monica had 92¢.
She bought a book that cost 68¢.
How much money did she have left?

3. Subtract. Use the long form.

a) 762
134

b) 381
159

c) 222
116

d) 834
128

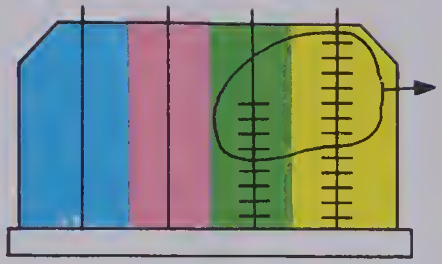
Thinking the Exchange

Subtract.

$$\begin{array}{r}92 = 90 + 2\\ 47 = 40 + 7\\ \hline\end{array}$$

Exchange 1 ten for 10 ones.

$$\begin{array}{r}92 = 80 + 12\\ 47 = 40 + 7\\ \hline 45 = 40 + 5\end{array}$$



Try thinking the exchange, instead of using the long form.

You **could** think this way.

Subtract.

$$\begin{array}{r}92\\ 47\\ \hline 45\end{array}$$

Think 12 subtract 7.
Write 5 under the ones column.
Remember 8.
Think 8 subtract 4.
Write 4 under the tens column.

You need only to think like this.

Subtract.

$$\begin{array}{r}63\\ 29\\ \hline 34\end{array}$$

Think 13, 4.
Write 4.
Remember 5.
Think 5, 3.
Write 3.

In Action

1. Subtract.

a) $\begin{array}{r}81\\ 36\\ \hline\end{array}$

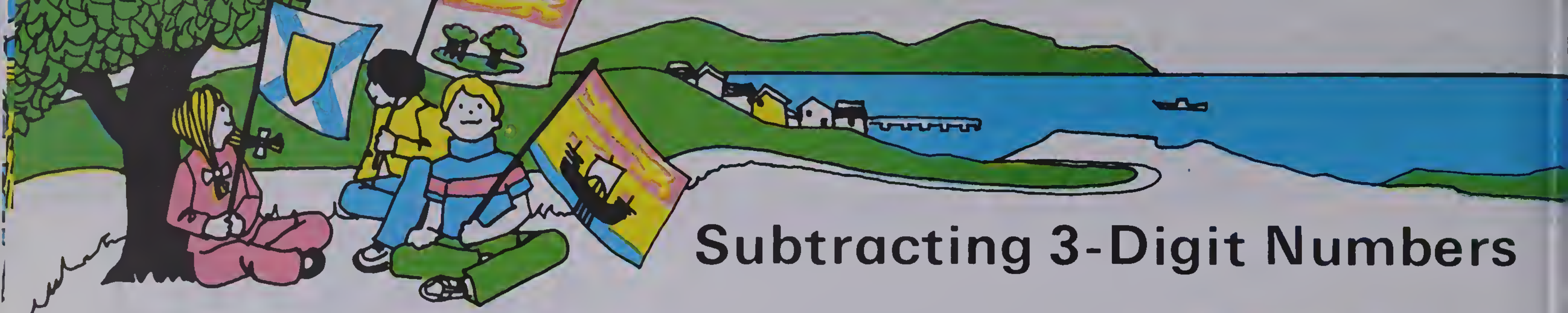
Think 11, 5.
Record 5 under the ? column.
Remember ?
Think 7, 4.
Record ? under the tens column.

b) $\begin{array}{r}50\\ 17\\ \hline\end{array}$ c) $\begin{array}{r}71\\ 48\\ \hline\end{array}$ d) $\begin{array}{r}80\\ 23\\ \hline\end{array}$ e) $\begin{array}{r}62\\ 34\\ \hline\end{array}$

f) $\begin{array}{r}72\\ 35\\ \hline\end{array}$ g) $\begin{array}{r}91\\ 69\\ \hline\end{array}$ h) $\begin{array}{r}90\\ 56\\ \hline\end{array}$ i) $\begin{array}{r}43\\ 18\\ \hline\end{array}$

j) $\begin{array}{r}74\\ 27\\ \hline\end{array}$ k) $\begin{array}{r}51\\ 12\\ \hline\end{array}$ l) $\begin{array}{r}90\\ 71\\ \hline\end{array}$ m) $\begin{array}{r}85\\ 49\\ \hline\end{array}$

2. The Grade 3 classes voted for their favourite hockey team.
83 children chose the Canucks.
68 children chose the Canadiens.
a) Which was the favourite team? b) By how many votes did it win?



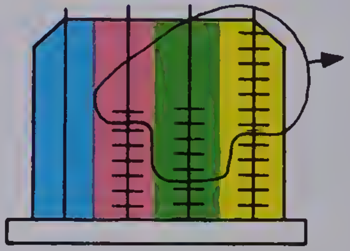
Subtracting 3-Digit Numbers

Subtract.

$$\begin{array}{r} 782 = 700 + 80 + 2 \\ 157 = 100 + 50 + 7 \\ \hline \end{array}$$

Exchange 1 ten for 10 ones.

$$\begin{array}{r} 782 = 700 + 70 + 12 \\ 157 = 100 + 50 + 7 \\ \hline 625 = 600 + 20 + 5 \end{array}$$



We can think the exchange.
Subtract.

$$\begin{array}{r} 782 \\ 157 \\ \hline 625 \end{array}$$

Think 12, 5.
Write 5 under the ones column.
Remember 7.
Think 7, 2.
Write 2 under the tens column.
Think 7, 6.
Write 6 under the hundreds column.

Subtract.

$$\begin{array}{r} 971 \\ 436 \\ \hline 535 \end{array}$$

Think 11, 5.
Write 5.
Remember 6.
Think 6, 3.
Write 3.
Think 9, 5.
Write 5.

In Action

1. Subtract.

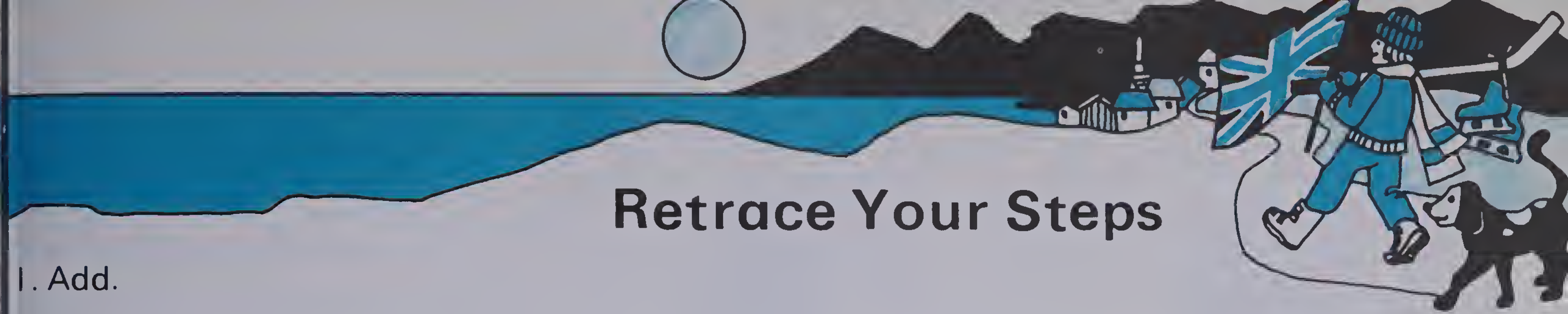
a) $\begin{array}{r} 874 \\ 505 \\ \hline \end{array}$

Think 14, 9.
Write 9 under the ? column.
Remember ?
Think 6, 6.
Write ? under the tens column.
Think 8, ?.
Write ? under the hundreds column.

b) $\begin{array}{r} 980 \\ 128 \\ \hline \end{array}$ d) $\begin{array}{r} 783 \\ 516 \\ \hline \end{array}$ f) $\begin{array}{r} 872 \\ 339 \\ \hline \end{array}$

c) $\begin{array}{r} 691 \\ 205 \\ \hline \end{array}$ e) $\begin{array}{r} 990 \\ 607 \\ \hline \end{array}$ g) $\begin{array}{r} 894 \\ 748 \\ \hline \end{array}$

2. During one year, 572 tankers docked at Halifax harbour.
The same year, 346 freighters used the harbour.
How many more tankers than freighters came into the harbour?



Retrace Your Steps

1. Add.

a)	b)	c)	d)	e)	f)
19	27	73	56	65	38
62	44	19	37	28	46

2. Subtract.

a)	b)	c)	d)	e)	f)
90	81	92	70	63	95
16	47	25	59	28	36

3. Add.

a)	b)	c)	d)	e)	f)
109	412	231	547	304	616
881	378	709	103	558	265

4. Subtract.

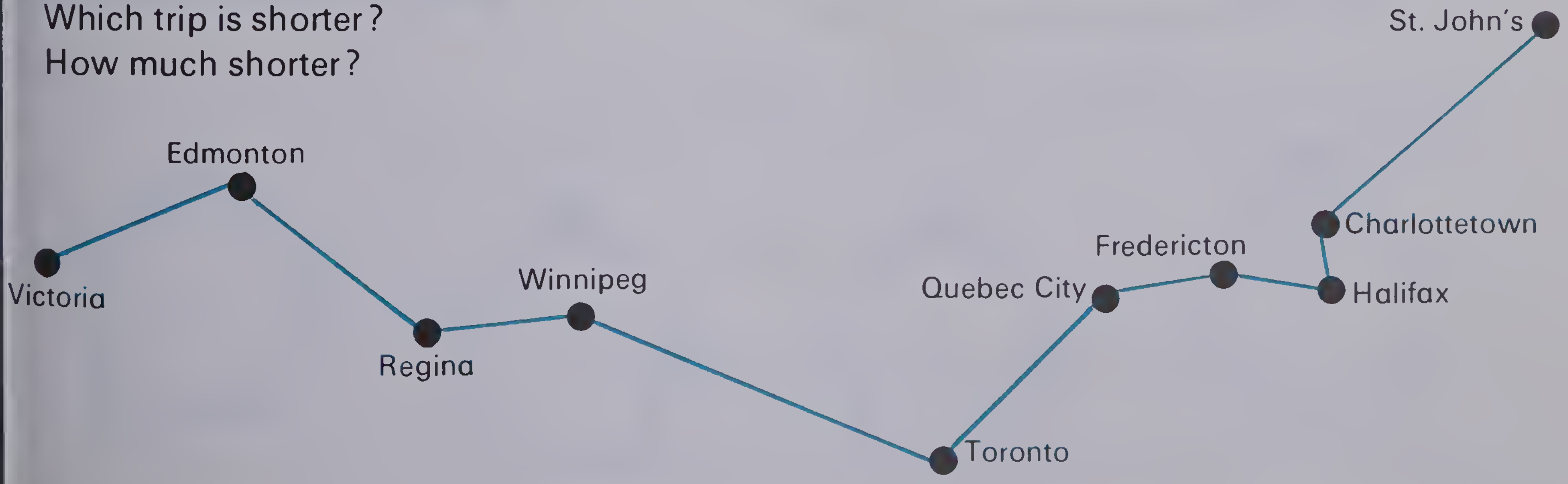
a)	b)	c)	d)	e)	f)
954	890	983	792	670	461
107	546	425	634	303	202

Let's Fly Around Canada!

5. It is 371 km from Fredericton to Quebec City and 268 km from Fredericton to Charlottetown. How much longer is the trip to Quebec City?

6. It is 690 km from Regina to Edmonton and 536 km from Regina to Winnipeg. How much shorter is the trip to Winnipeg?

7. It is 882 km from Victoria to Edmonton and 624 km from Charlottetown to Quebec City. Which trip is shorter? How much shorter?


St. John's
Edmonton
Charlottetown
Fredericton
Victoria
Winnipeg
Quebec City
Halifax
Regina
Toronto

Our Government

The people who make up our government are elected to represent their area of Canada.

The chart shows how many people are elected from each province.

The Yukon Territory and the Northwest Territories each elect I person.

British Columbia	23
Alberta	19
Saskatchewan	13
Manitoba	13
Ontario	88
Quebec	74
New Brunswick	10
Nova Scotia	11
Prince Edward Island	4
Newfoundland	7

1. How many provinces are there in Canada?

2. How many more people are elected in Quebec than in British Columbia?

3. How many more people are elected in Ontario than in Alberta?

4. How many people are elected in Ontario and Quebec?

5. How many people are elected to the government altogether?

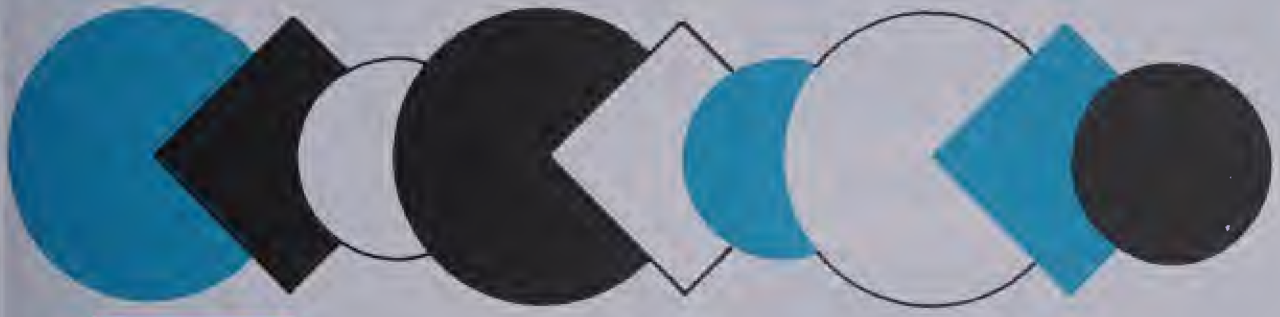
Byway

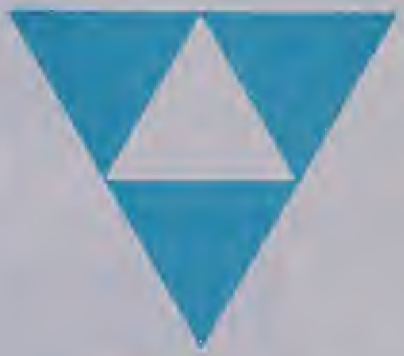
An Experiment

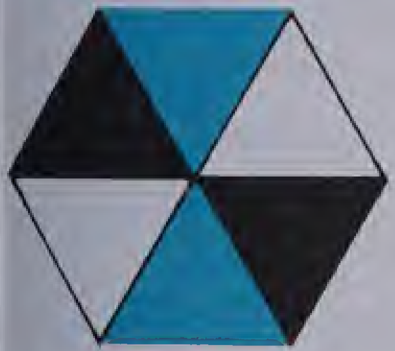
How many litres of water do you drink in a day?
Use your own litre container to find out.

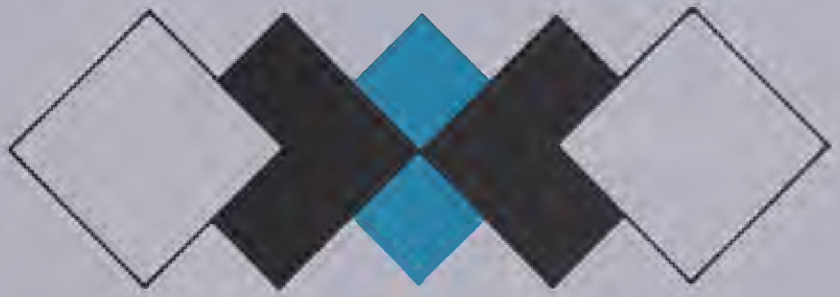
Patterns

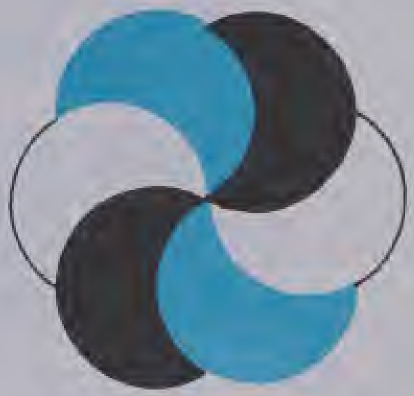
Use the shapes on your *mathways* ruler.
Cut shapes from coloured paper to make these patterns.





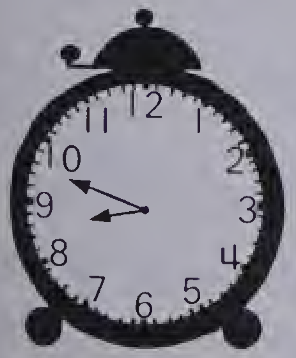






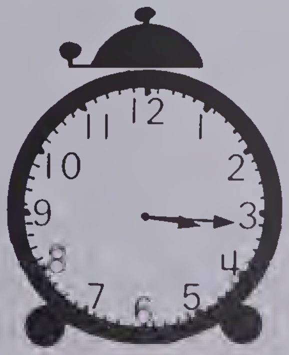
Create shape patterns of your own.

What Time Is It?

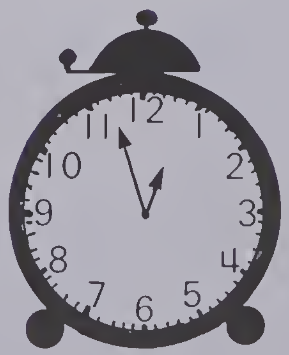


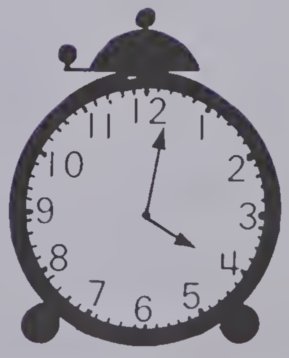
5 minutes later

30 minutes earlier



21 minutes earlier





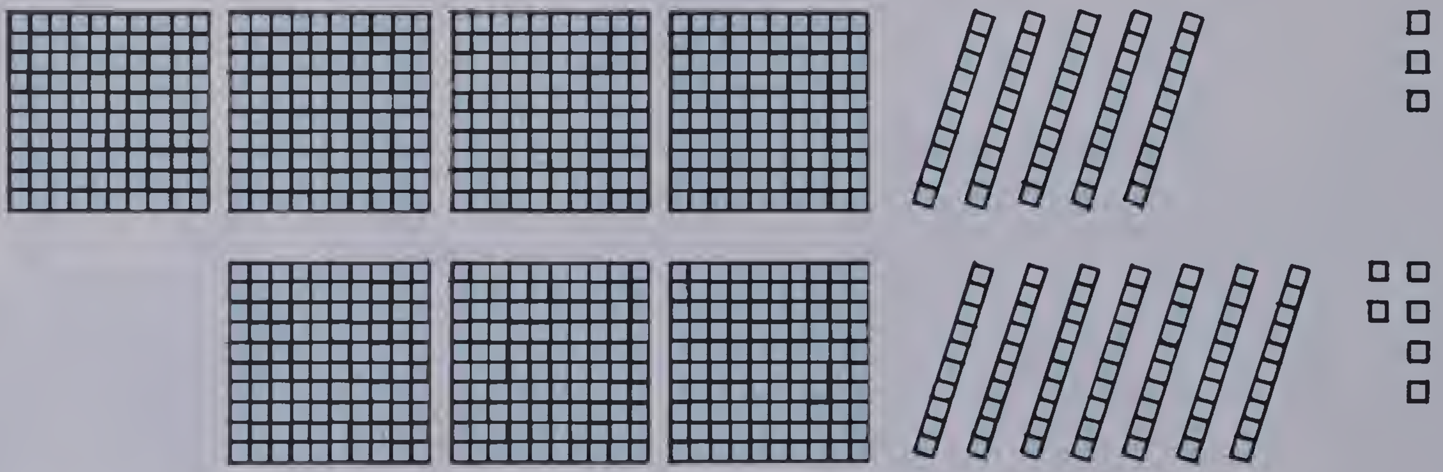
28 minutes later

Explore Exchanging 10 tens for 1 hundred

Use the large squares, strips, and small squares you made for page 95.
You can think about 3-digit numbers using your hundreds, tens, and ones.

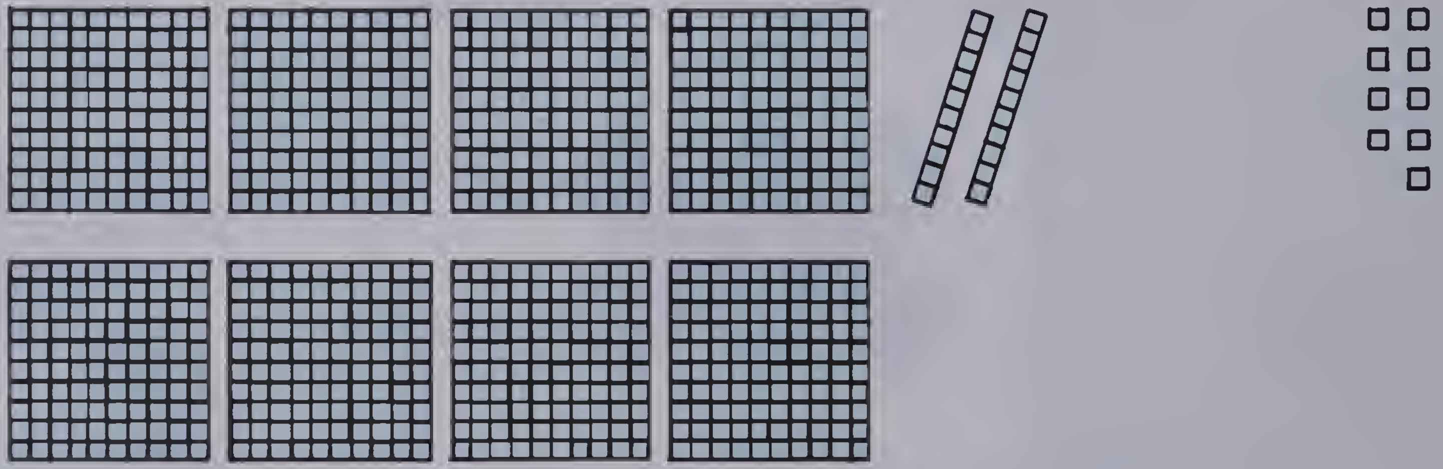
Add.

$$\begin{array}{r} 453 \\ 376 \\ \hline \end{array}$$



7 hundreds, 12 tens, and 9

Exchange 10 tens for 1 hundred.



8 hundreds, 2 tens, and 9

Write your addition question like this.
Add.

$$\begin{array}{rcl} 453 & = & 400 + 50 + 3 \\ 376 & = & 300 + 70 + 6 \\ \hline & & 700 + 120 + 9 \end{array}$$

Exchange 10 tens for 1 hundred.

829 = 800 + 20 + 9

$$\begin{array}{rcl} 225 & = & ? + ? + ? \\ 694 & = & ? + ? + ? \\ \hline & & ? + ? + ? \end{array}$$

Exchange 10 tens for 1 hundred.

? = ? + ? + ?

Work with a partner.
Show addition questions like the ones on this page.

Thinking the New Exchange

You can use the long form to add.

Add. $\begin{array}{r} 293 = 200 + 90 + 3 \\ 546 = 500 + 40 + 6 \\ \hline 839 = 700 + 130 + 9 \end{array}$

Or you can think the exchange.

Add. $\begin{array}{r} 293 \\ 546 \\ \hline 839 \end{array}$

Think
9
13
6, 8

In Action

1. Add. Use the long form.

a) $\begin{array}{r} 761 = 700 + 60 + 1 \\ 184 = 100 + 80 + 4 \\ \hline \end{array}$

b) $\begin{array}{r} 284 = 200 + \ ? \ + \ ? \\ 575 = \ ? \ + 70 + \ ? \\ \hline \end{array}$

c) $\begin{array}{r} 632 \\ 195 \\ \hline \end{array}$

d) $\begin{array}{r} 647 \\ 262 \\ \hline \end{array}$

e) $\begin{array}{r} 361 \\ 458 \\ \hline \end{array}$

f) $\begin{array}{r} 777 \\ 150 \\ \hline \end{array}$

g) $\begin{array}{r} 340 \\ 488 \\ \hline \end{array}$

h) $\begin{array}{r} 523 \\ 395 \\ \hline \end{array}$

i) $\begin{array}{r} 184 \\ 723 \\ \hline \end{array}$

j) $\begin{array}{r} 437 \\ 380 \\ \hline \end{array}$

2. Add. Think the exchange.

a) $\begin{array}{r} 639 \\ 180 \\ \hline \end{array}$

Think
9
?
2, 8

b) $\begin{array}{r} 732 \\ 194 \\ \hline \end{array}$

c) $\begin{array}{r} 271 \\ 466 \\ \hline \end{array}$

d) $\begin{array}{r} 559 \\ 280 \\ \hline \end{array}$

e) $\begin{array}{r} 621 \\ 197 \\ \hline \end{array}$

f) $\begin{array}{r} 342 \\ 476 \\ \hline \end{array}$

g) $\begin{array}{r} 560 \\ 258 \\ \hline \end{array}$

h) $\begin{array}{r} 573 \\ 274 \\ \hline \end{array}$

i) $\begin{array}{r} 681 \\ 276 \\ \hline \end{array}$

j) $\begin{array}{r} 459 \\ 380 \\ \hline \end{array}$

k) $\begin{array}{r} 728 \\ 191 \\ \hline \end{array}$

l) $\begin{array}{r} 834 \\ 92 \\ \hline \end{array}$

m) $\begin{array}{r} 367 \\ 82 \\ \hline \end{array}$

n) $\begin{array}{r} 436 \\ 482 \\ \hline \end{array}$

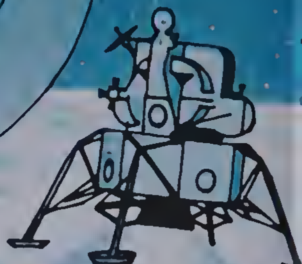
o) $\begin{array}{r} 777 \\ 181 \\ \hline \end{array}$

p) $\begin{array}{r} 485 \\ 462 \\ \hline \end{array}$

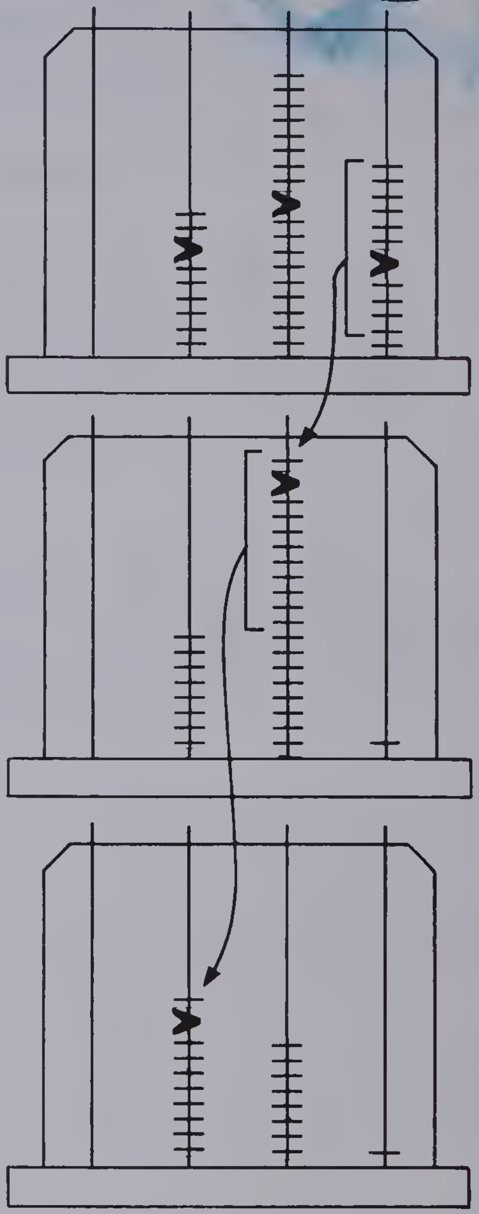
q) $\begin{array}{r} 296 \\ 633 \\ \hline \end{array}$

r) $\begin{array}{r} 750 \\ 149 \\ \hline \end{array}$

3. The aircraft carrier waited for the Apollo spaceship in the Pacific Ocean near Samoa. Rescue planes patrolled 736 km uprange from the ship and 182 km downrange. How long was the rescue area?



Two Exchanges



Now you can add numbers like 695 and 286.

Add.
$$\begin{array}{rcrcrcr} 695 & = & 600 & + & 90 & + & 5 \\ 286 & = & 200 & + & 80 & + & 6 \\ \hline & & 800 & + & 170 & + & 11 \end{array}$$

Exchange 10 ones for 1 ten.

$$800 + 180 + 1$$

Exchange 10 tens for 1 hundred.

$$981 = 900 + 80 + 1$$

Now let's think the exchange. Add.
$$\begin{array}{r} 695 \\ 286 \\ \hline 981 \end{array}$$

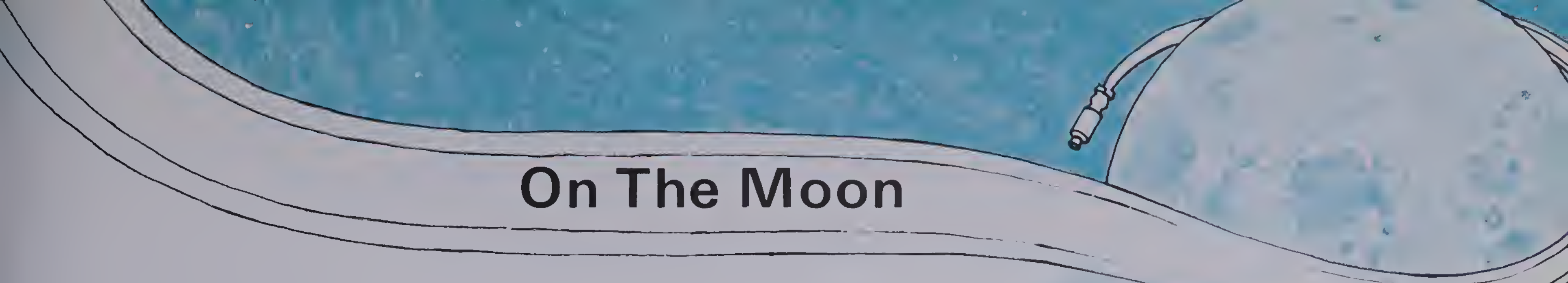
Think
11
9, 18
3, 9

In Action

1. Add. Think the exchanges.

a) 378 534	Think ? 4, ? 6, 9	c) 481 239	e) 182 319	g) 765 147	i) 459 343	k) 156 644
b) 719 194		d) 573 367	f) 448 152	h) 627 295	j) 336 584	l) 289 197

2. "There's a lot of moon on Earth, now!"
On 3 landings, U.S. astronauts brought back 96 kg of moon rocks and soil.
On 2 later landings, they brought back 174 kg of the moon.
How many kilograms of moon were on Earth then?



On The Moon

The astronaut took a moon-step 249 cm long.
He took another moon-step 173 cm long.
How far did he move altogether?

$$\begin{array}{r} 249 \\ 173 \\ \hline 422 \end{array}$$

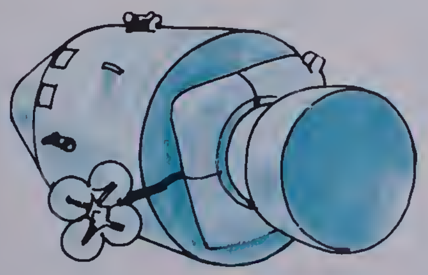
The astronaut moved 422 cm altogether.

1. One astronaut collected 473 moon rocks.
The other astronaut collected
388 moon rocks.
How many rocks did they collect altogether?

2. The rocket has mass 624 kg.
The lunar rover has mass 186 kg.
What is their total mass?

3. The astronauts drove the lunar rover across 2 craters.
They drove 104 m to cross one crater
and 239 m to cross the other crater.
How far did they drive the lunar rover?

4. In 1 minute, the space module
travelled 458 km.
How far did it travel in 2 minutes?



5. One astronaut brought back
167 g of moon dust.
The other astronaut brought back
234 g of moon dust.
How much moon dust did they
bring back altogether?

6. Create a story problem for 265 + 599 = ?

Exchanging I hundred for I0 tens

Subtract.

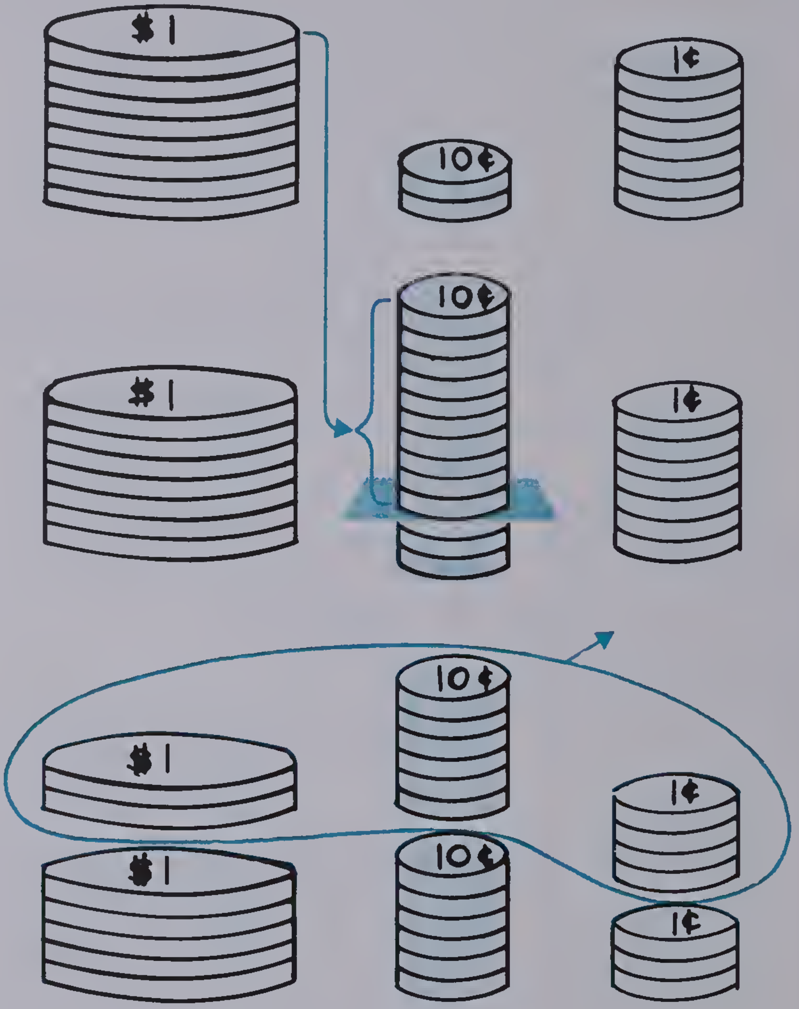
$$\begin{array}{r}827 = 800 + 20 + 7\\ \underline{264} = \underline{200 + 60 + 4}\end{array}$$

We can subtract 4 ones from 7 ones,
but how do we subtract 6 tens from 2 tens?
Exchange I hundred for I0 tens.

$$\begin{array}{r}827 = 700 + 120 + 7\\ \underline{264} = \underline{200 + 60 + 4}\end{array}$$

Now we can complete the subtraction.

$$\begin{array}{r}827 = 700 + 120 + 7\\ \underline{264} = \underline{200 + 60 + 4}\\ 563 = 500 + 60 + 3\end{array}$$



In Action

I. Show each number.
Exchange I hundred for I0 tens.
Then write the numeral 2 ways, like this.

$$\begin{array}{r}548 = 500 + 40 + 8\\ = 400 + 140 + 8\end{array}$$

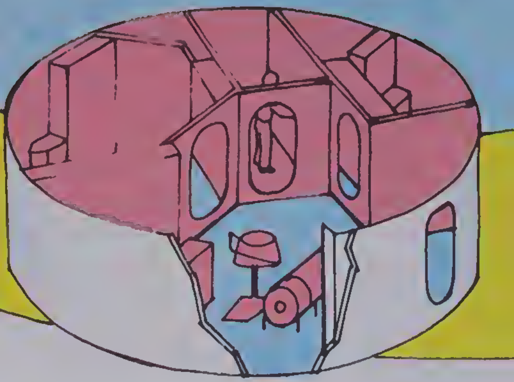
a) 912 b) 837 c) 303 d) 625 e) 940 f) 816 g) 435 h) 715

2. Subtract.

a)	b)	c)	d)	e)	f)	g)
907	719	926	809	833	915	949
691	580	432	170	642	351	163

3. The longest manned Gemini flight went around the earth 206 times.
An earlier flight went around the earth I 20 times.
How many more times did the longer flight go around the earth?

Thinking the Exchange



You can use the long form to subtract.

Subtract.
$$\begin{array}{rcl} 908 &=& 800 + 100 + 8 \\ 273 &=& 200 + 70 + 3 \\ \hline 635 &=& 600 + 30 + 5 \end{array}$$

Or you can think the exchange.

Subtract.
$$\begin{array}{r} 908 \\ 273 \\ \hline 635 \end{array}$$

Think
8, 5
10, 3
8, 6

In Action

1. Subtract. Use the long form.

$$\text{a)}\ \begin{array}{rcl} 817 &=& 700 + 110 + 7 \\ 361 &=& 300 + \ ? \ + ? \\ \hline \end{array} \qquad \text{b)}\ \begin{array}{rcl} 709 &=& 600 + ? + ? \\ 192 &=& \ ? \ + ? + ? \\ \hline \end{array} \qquad \text{c)}\ \begin{array}{r} 548 \\ 275 \\ \hline \end{array} \qquad \text{d)}\ \begin{array}{r} 906 \\ 611 \\ \hline \end{array}$$

$$\text{e)}\ \begin{array}{r} 718 \\ 560 \\ \hline \end{array} \quad \text{f)}\ \begin{array}{r} 925 \\ 542 \\ \hline \end{array} \quad \text{g)}\ \begin{array}{r} 806 \\ 454 \\ \hline \end{array} \quad \text{h)}\ \begin{array}{r} 637 \\ 373 \\ \hline \end{array} \quad \text{i)}\ \begin{array}{r} 514 \\ 123 \\ \hline \end{array} \quad \text{j)}\ \begin{array}{r} 624 \\ 154 \\ \hline \end{array} \quad \text{k)}\ \begin{array}{r} 838 \\ 156 \\ \hline \end{array}$$

$$\text{l)}\ \begin{array}{r} 806 \\ 506 \\ \hline \end{array} \quad \text{m)}\ \begin{array}{r} 767 \\ 127 \\ \hline \end{array} \quad \text{n)}\ \begin{array}{r} 815 \\ 144 \\ \hline \end{array} \quad \text{o)}\ \begin{array}{r} 319 \\ 184 \\ \hline \end{array} \quad \text{p)}\ \begin{array}{r} 208 \\ 162 \\ \hline \end{array} \quad \text{q)}\ \begin{array}{r} 627 \\ 431 \\ \hline \end{array} \quad \text{r)}\ \begin{array}{r} 919 \\ 191 \\ \hline \end{array}$$

2. Subtract. Think the exchange.

$$\text{a)}\ \begin{array}{r} 819 \\ 283 \\ \hline \end{array}$$

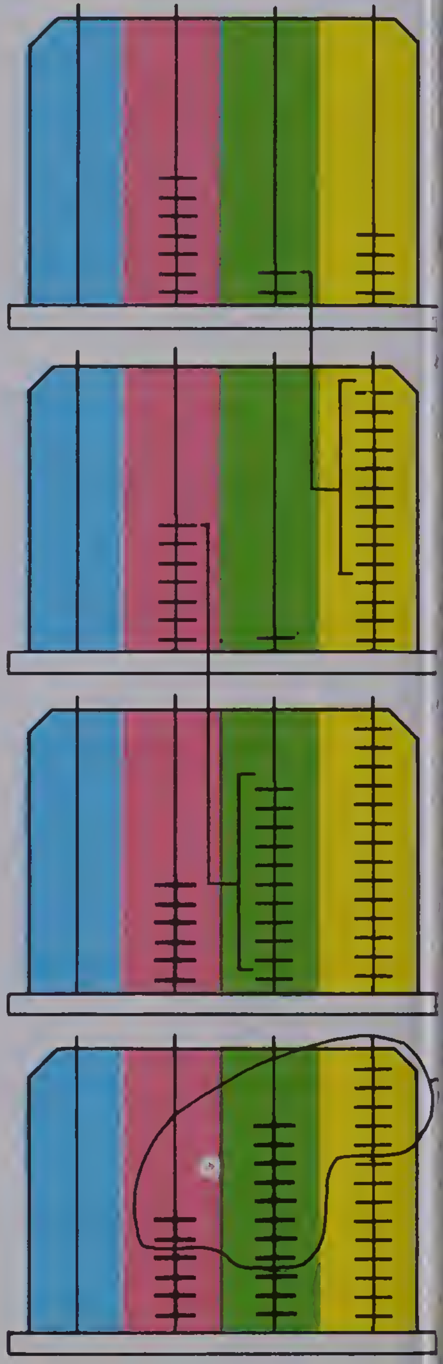
Think
9, 6
?, 3
7, ?

$$\text{b)}\ \begin{array}{r} 839 \\ 580 \\ \hline \end{array} \quad \text{c)}\ \begin{array}{r} 654 \\ 490 \\ \hline \end{array} \quad \text{d)}\ \begin{array}{r} 845 \\ 374 \\ \hline \end{array} \quad \text{e)}\ \begin{array}{r} 914 \\ 752 \\ \hline \end{array} \quad \text{f)}\ \begin{array}{r} 729 \\ 281 \\ \hline \end{array}$$

$$\text{g)}\ \begin{array}{r} 907 \\ 723 \\ \hline \end{array} \quad \text{h)}\ \begin{array}{r} 907 \\ 616 \\ \hline \end{array} \quad \text{i)}\ \begin{array}{r} 728 \\ 191 \\ \hline \end{array} \quad \text{j)}\ \begin{array}{r} 406 \\ 172 \\ \hline \end{array} \quad \text{k)}\ \begin{array}{r} 805 \\ 193 \\ \hline \end{array} \quad \text{l)}\ \begin{array}{r} 528 \\ 260 \\ \hline \end{array} \quad \text{m)}\ \begin{array}{r} 615 \\ 342 \\ \hline \end{array}$$

3. The Skylab workshop has a volume of 368 m^3.
A room 7 m long, 7 m wide, and 4 m high has a volume of 196 m^3.
How much larger is the Skylab workshop?

Two Exchanges



Now you can do subtraction questions like this one.

724
285

Subtract.

$$\begin{array}{r} 724 = 700 + 20 + 4 \\ \underline{285} = \underline{200 + 80 + 5} \end{array}$$

Exchange 1 ten for 10 ones.

$$\begin{array}{r} 724 = 700 + 10 + 14 \\ \underline{285} = \underline{200 + 80 + 5} \end{array}$$

Exchange 1 hundred for 10 tens.

$$\begin{array}{r} 724 = 600 + 110 + 14 \\ \underline{285} = \underline{200 + 80 + 5} \end{array}$$

We can complete the subtraction.

$$439 = 400 + 30 + 9$$

Now let's think the exchanges. Subtract.

724
285
439

Think
14,9
11,3
6,4

In Action

1. Subtract. Think the exchanges.

a) 922
497

Think
12,5
?,2
8,4

b) 713
138

c) 532
186

d) 810
179

e) 931
568

f) 941
656

g) 814
365

h) 620
459

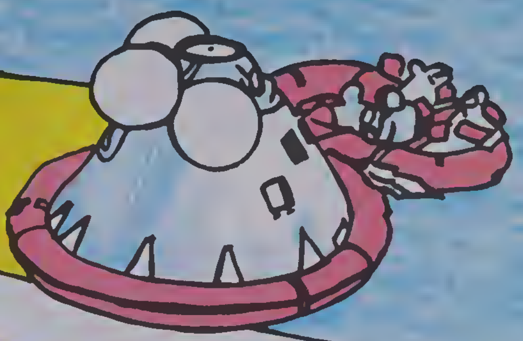
i) 836
247

j) 754
163

k) 803
156

2. Venus takes 225 days to travel around the sun.
Mercury takes 88 days. How much shorter is Mercury's trip?

Retrace Your Steps



1. Add.
Use the long form.

392
419
Mercury

587
324
Venus

163
668
Earth

274
537
Mars

459
175
Jupiter

2. Add.
Think the exchanges.

495
326
Saturn

278
637
Uranus

586
216
Neptune

368
545
Pluto

3. Subtract.
Use the long form.

633
299

824
597

941
383

712
478

525
157

751
494

4. Subtract.
Think the exchanges.

413
197

942
578

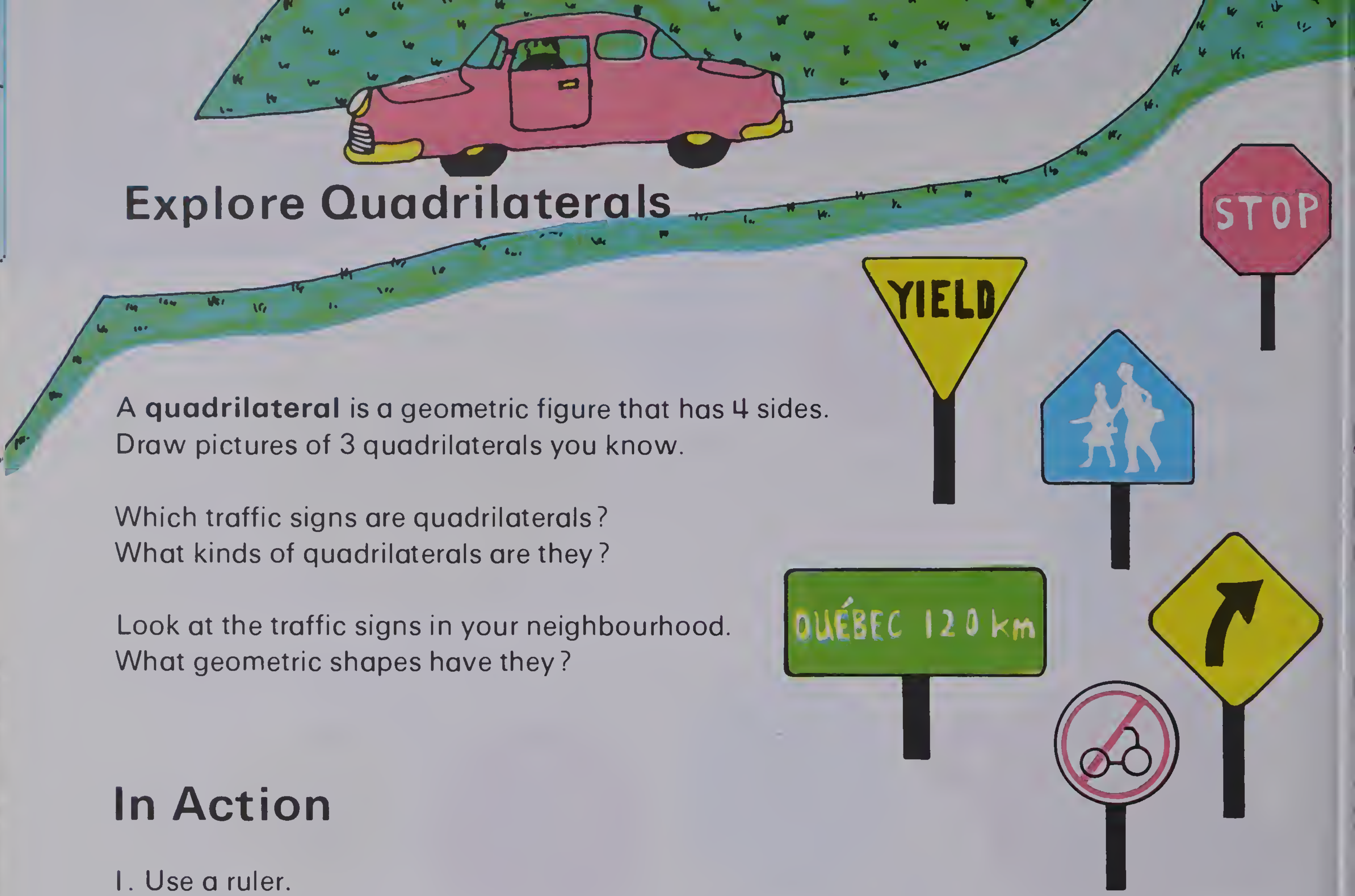
820
645

833
269

651
286

760
383

Explore Quadrilaterals



A **quadrilateral** is a geometric figure that has 4 sides.
Draw pictures of 3 quadrilaterals you know.

Which traffic signs are quadrilaterals?
What kinds of quadrilaterals are they?

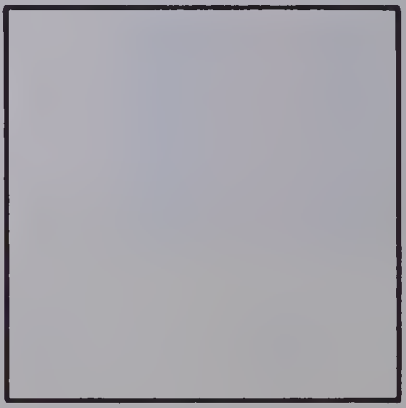
Look at the traffic signs in your neighbourhood.
What geometric shapes have they?

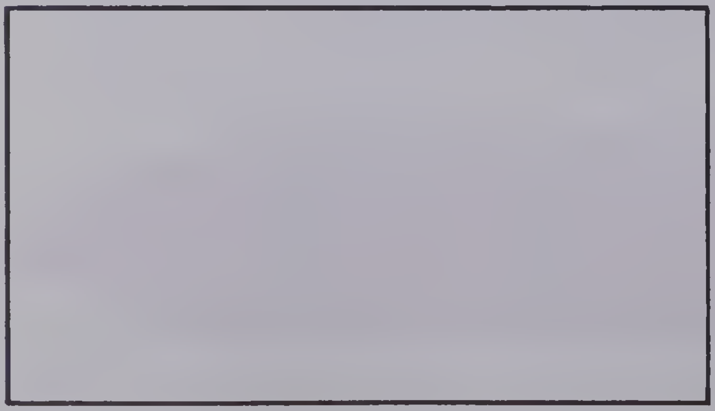
In Action

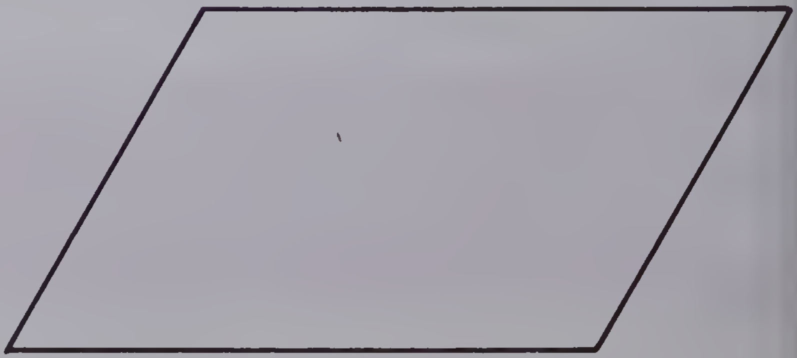
1. Use a ruler.
   Measure the sides of the square.
   What is special about a square?

2. Measure the sides of the rectangle.
   What do you notice about the measurements?

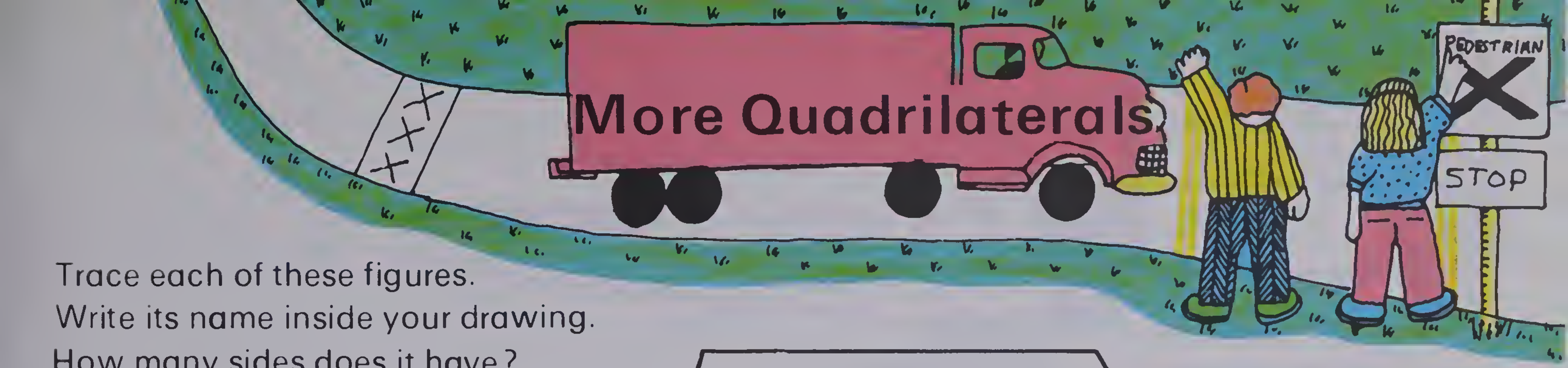
3. a) Measure the sides of the parallelogram.
   b) How is a parallelogram like a rectangle?
   How is a parallelogram different from a rectangle?



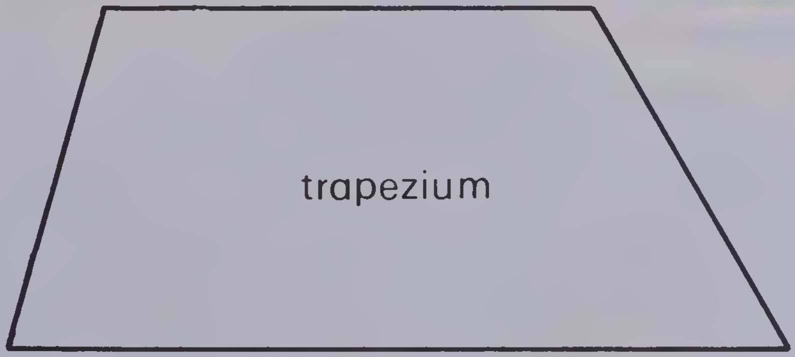


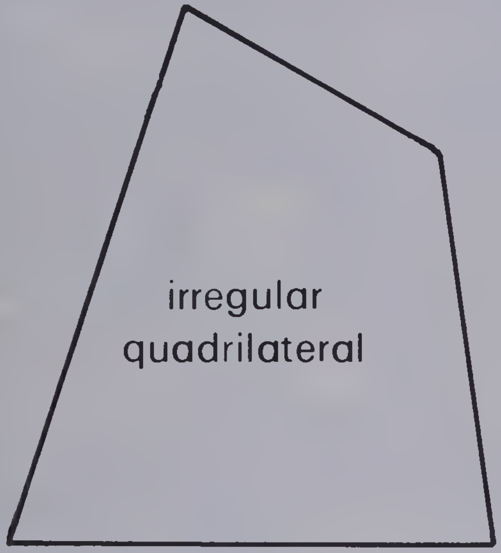


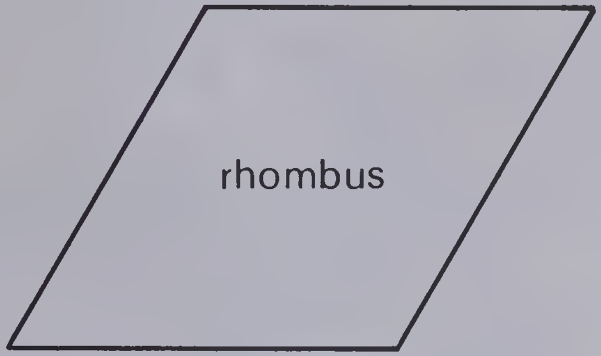
More Quadrilaterals

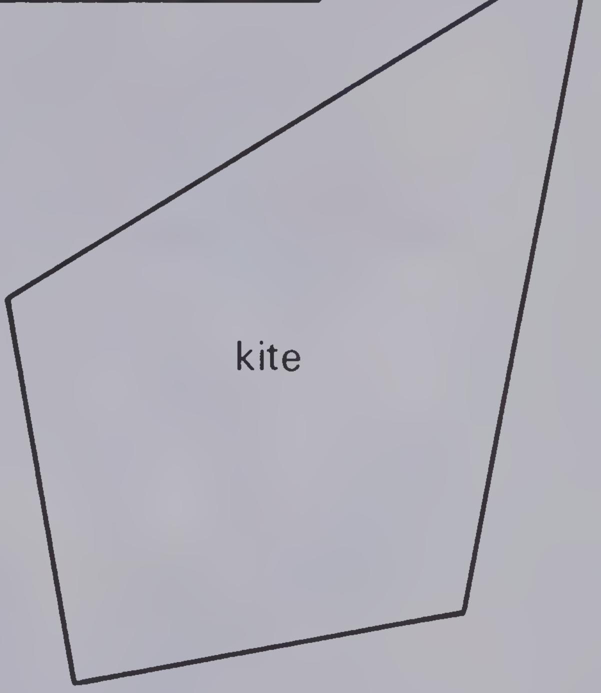


Trace each of these figures.
Write its name inside your drawing.
How many sides does it have?
What kind of figure is it?
How many vertices does it have?









Make a list of things you have seen that look like
a) a trapezium, b) a kite, c) a rhombus.

In Action

1. a) Use a ruler.
   Measure the sides of the rhombus.
   b) How is a rhombus like a square?
   How is a rhombus different from a square?
   c) How is a rhombus like a parallelogram?
   How is the rhombus different from the parallelogram on page 180?

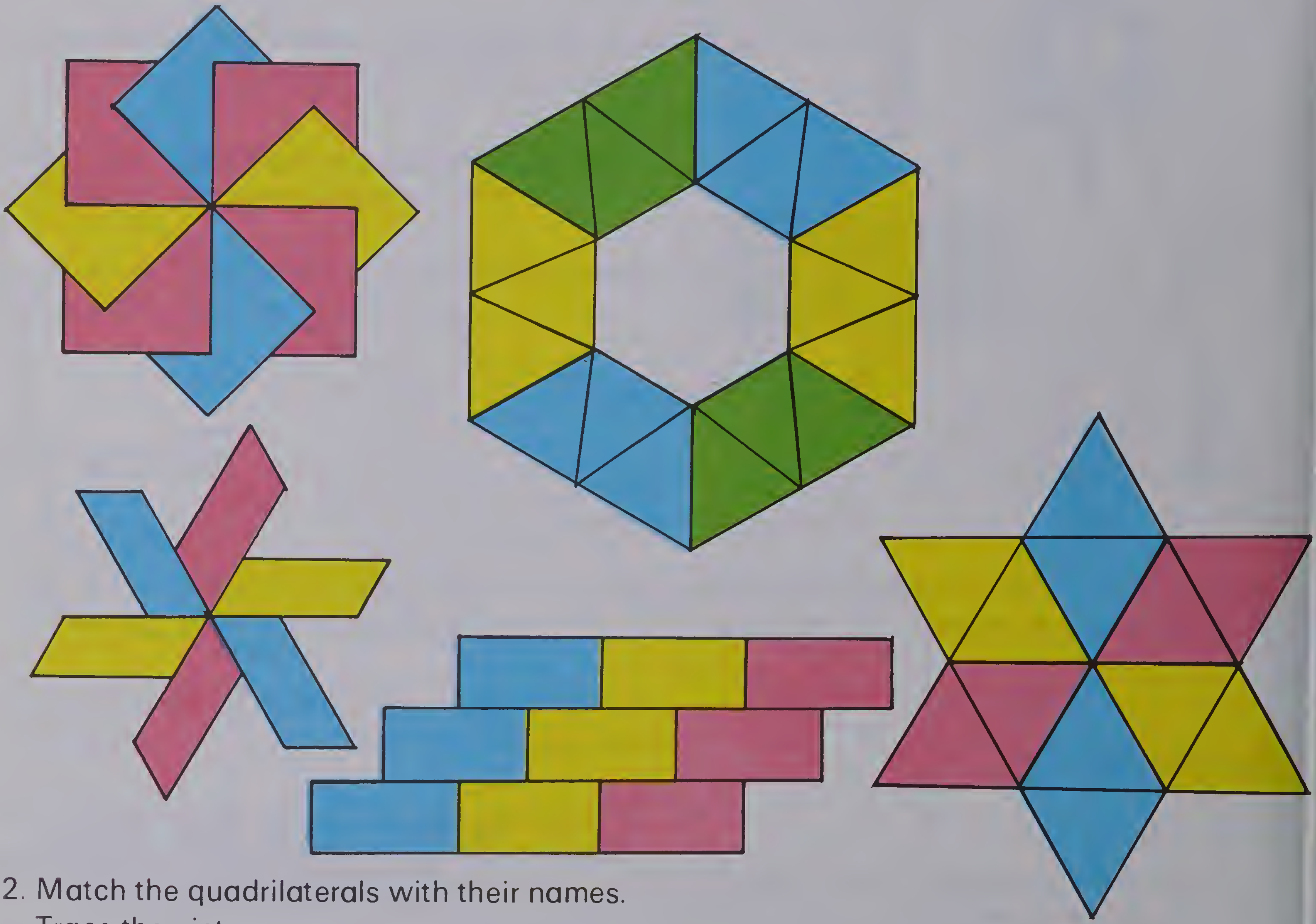
2. Measure the sides of the trapezium.
   What do you notice about the measurements?

3. a) Measure the sides of the kite.
   b) How is a kite like a parallelogram?
   How is a kite different from a parallelogram?

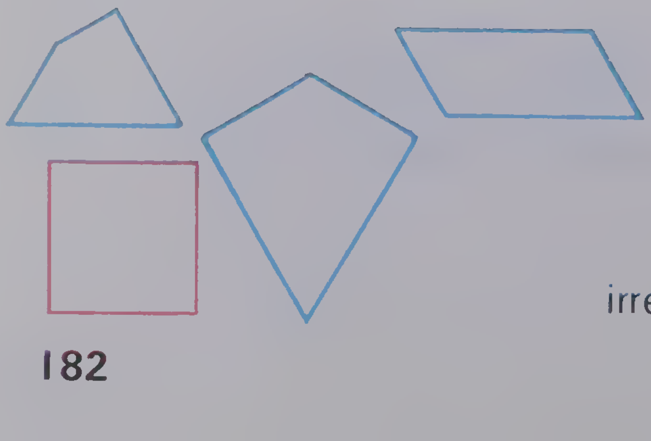
4. a) Measure the sides of the irregular quadrilateral.
   b) How did it get its name?

Patterns in Geometry

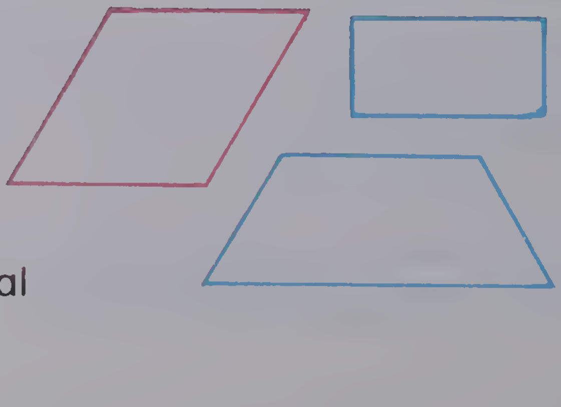
1. Use the shapes on your *mathways* ruler.
   Cut shapes from coloured paper to make these patterns.



2. Match the quadrilaterals with their names.
   Trace the pictures.
   Write the names.



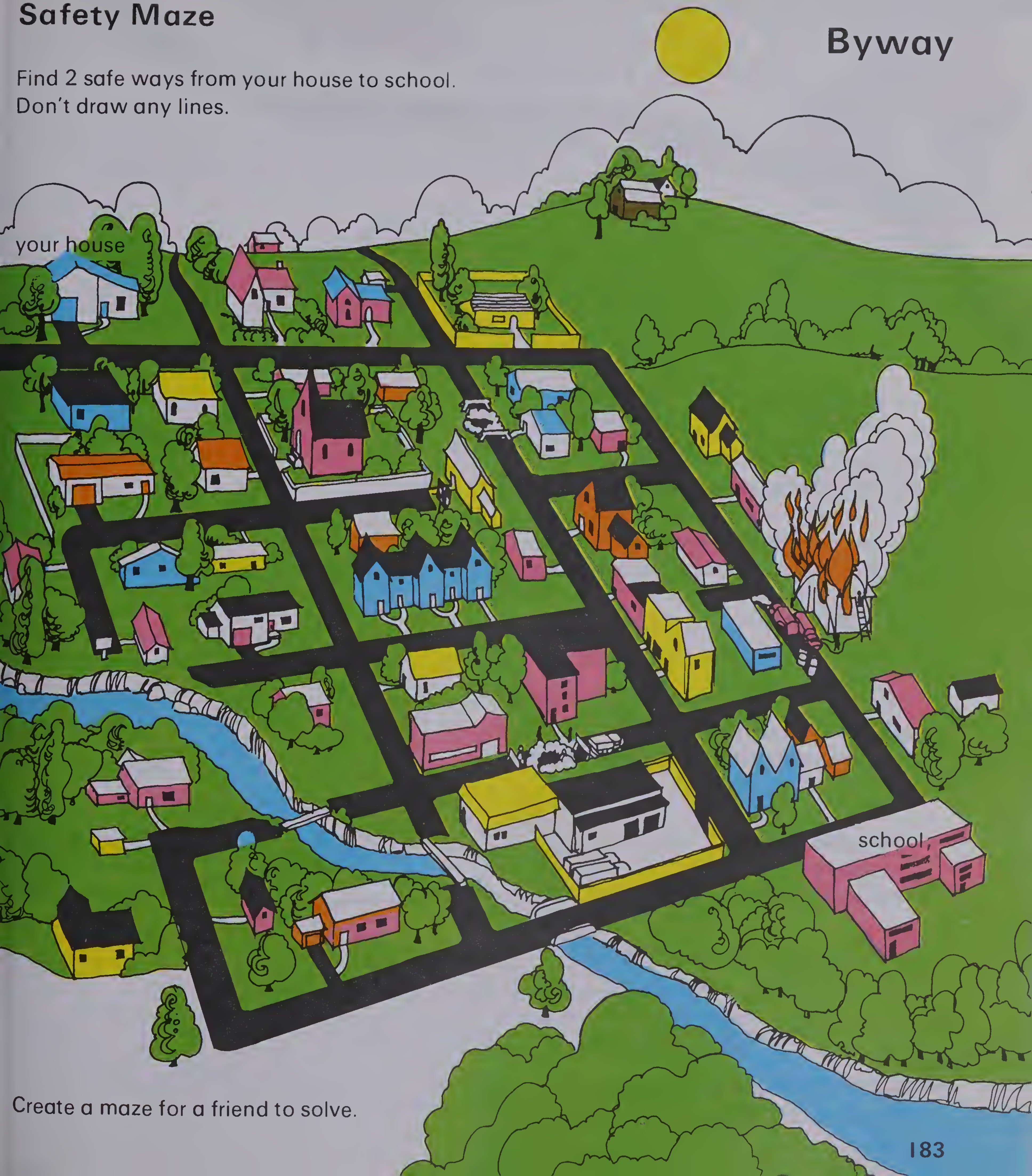
square
trapezium
parallelogram
kite
rhombus
rectangle
irregular quadrilateral



Safety Maze

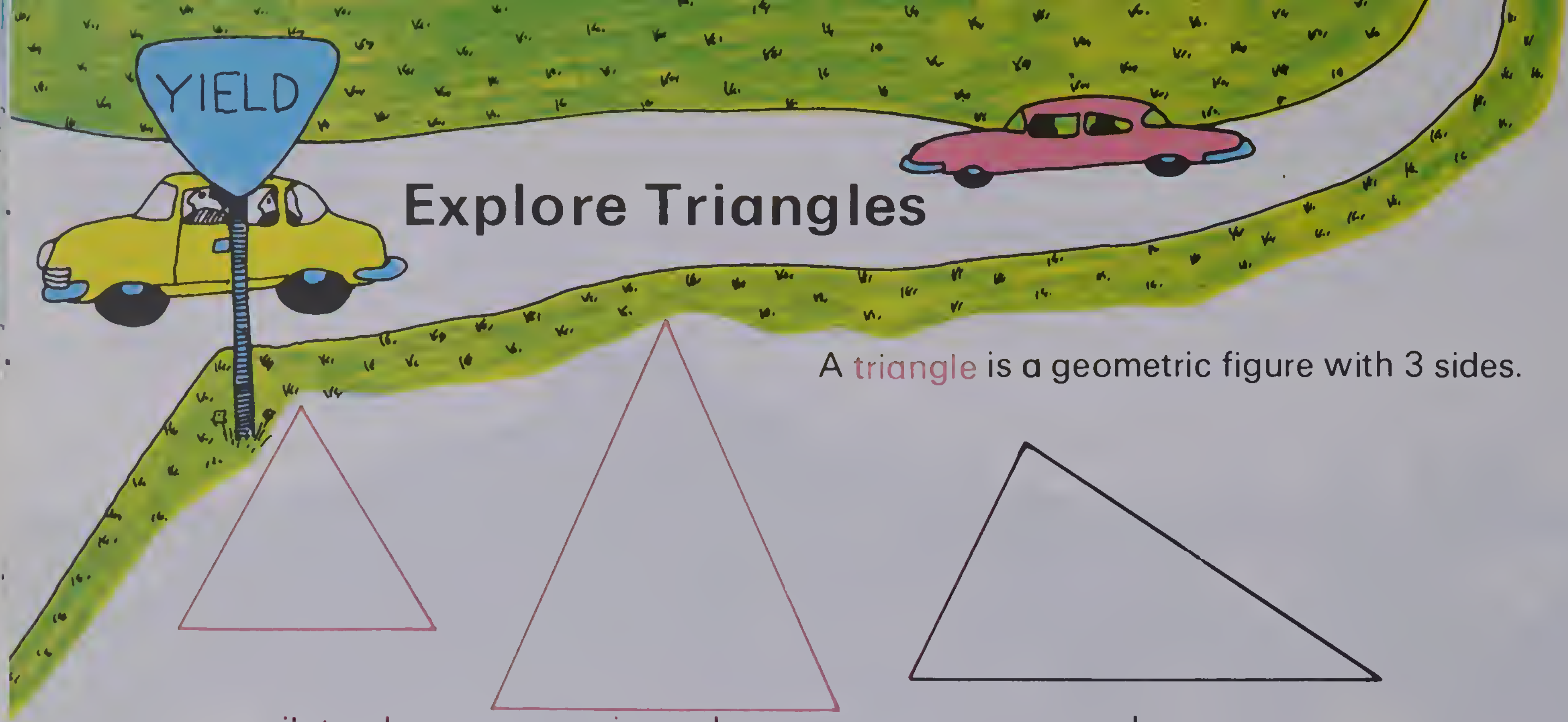
Byway

Find 2 safe ways from your house to school.
Don't draw any lines.


your house
school

Create a maze for a friend to solve.

Explore Triangles



A triangle is a geometric figure with 3 sides.

equilateral
triangle

isosceles
triangle

scalene
triangle

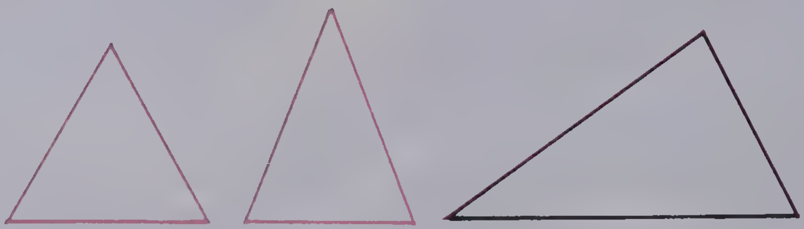
Trace each triangle.
Write its name below your drawing.

Measure the sides with a ruler.
Write the measurements on your drawing.

In Action

1. a) Draw the triangles.
   Describe them and write their names.

all sides different
all sides equal
2 sides equal

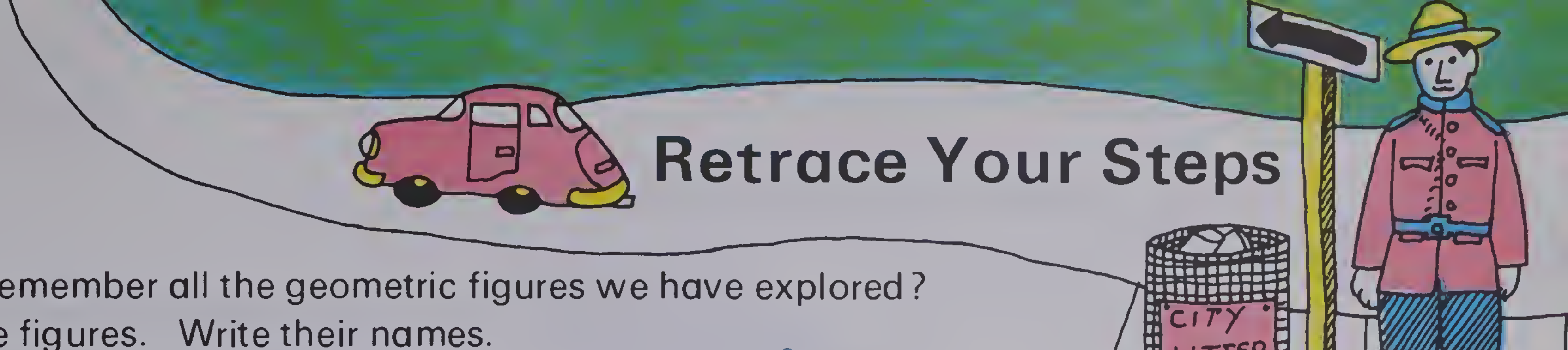


isosceles triangle
scalene triangle
equilateral triangle

b) How are the triangles different?

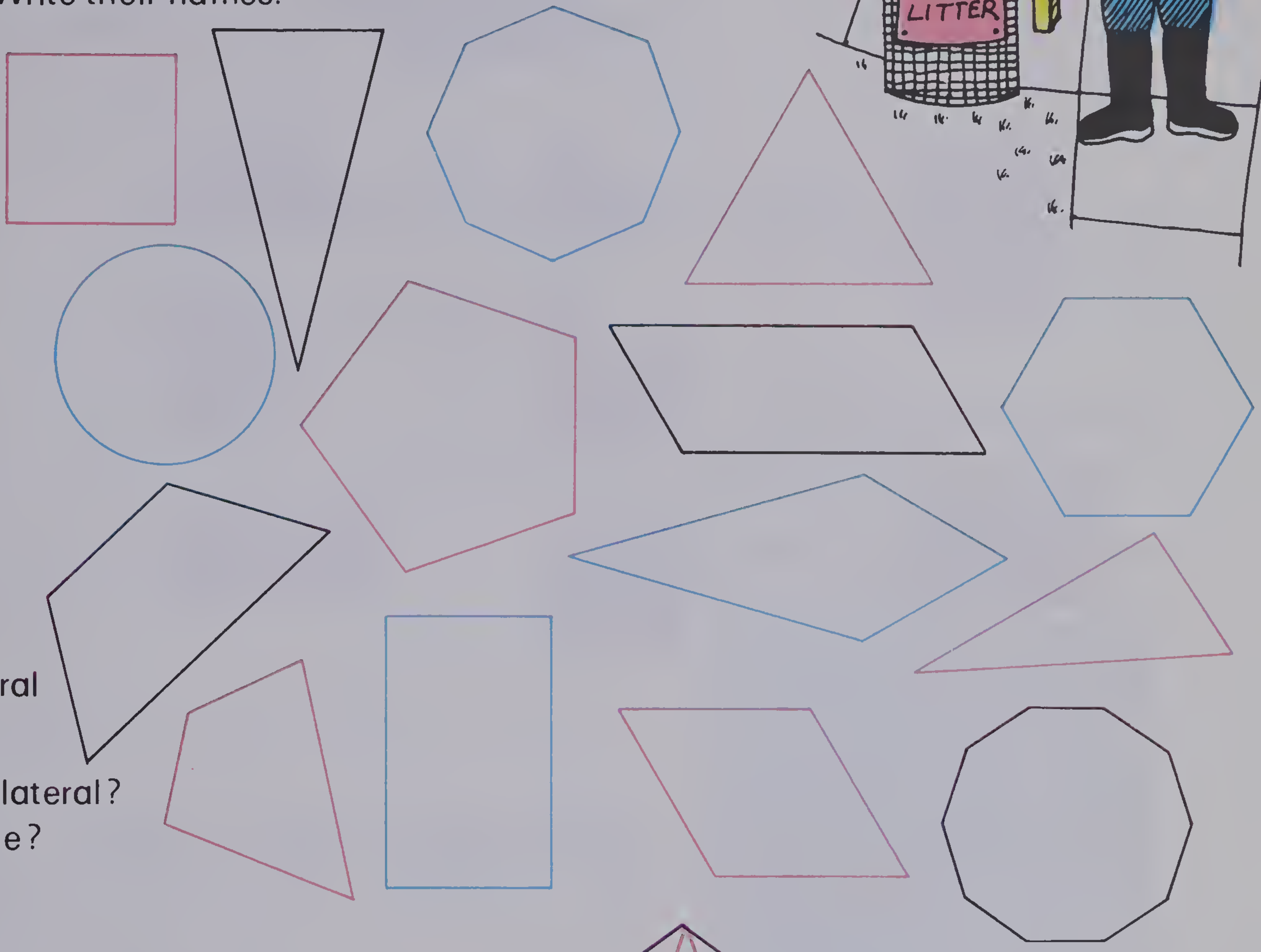
2. Trace the triangles on this page.
   Cut out several shapes and make patterns.

Retrace Your Steps



1. Do you remember all the geometric figures we have explored? Trace the figures. Write their names.

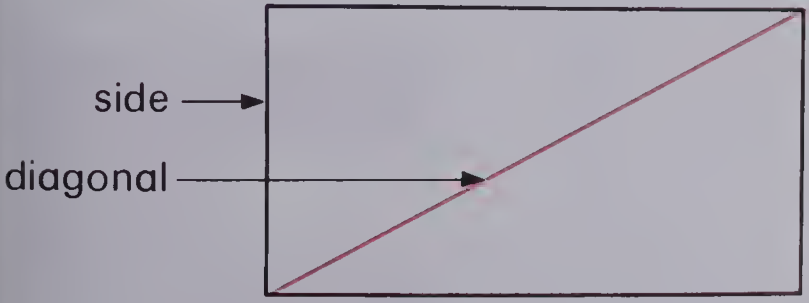
scalene triangle
pentagon
circle
rectangle
equilateral triangle
kite
octagon
square
isosceles triangle
trapezium
hexagon
decagon
parallelogram
rhombus
irregular quadrilateral

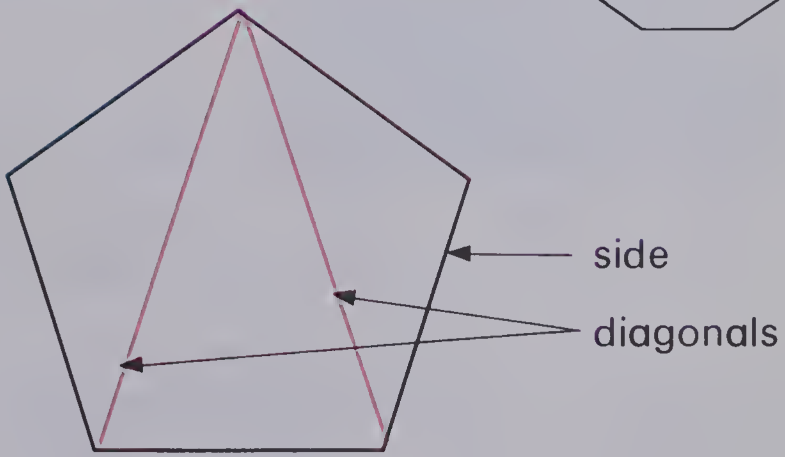


2. a) What is a quadrilateral?
b) What is a triangle?

Byway

Diagonals

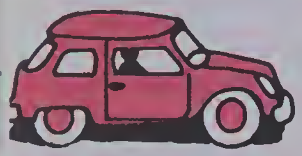




Complete the chart for a square, a pentagon, and a hexagon.

Figure	Number of Sides	Number of Diagonals
square	?	2

How many diagonals do you think a 7-sided figure would have?



$\frac{1}{100}$, one hundredth, 0.01

If we divide something into 10 equal parts, each part shows $\frac{1}{10}$. The decimal is 0.1.

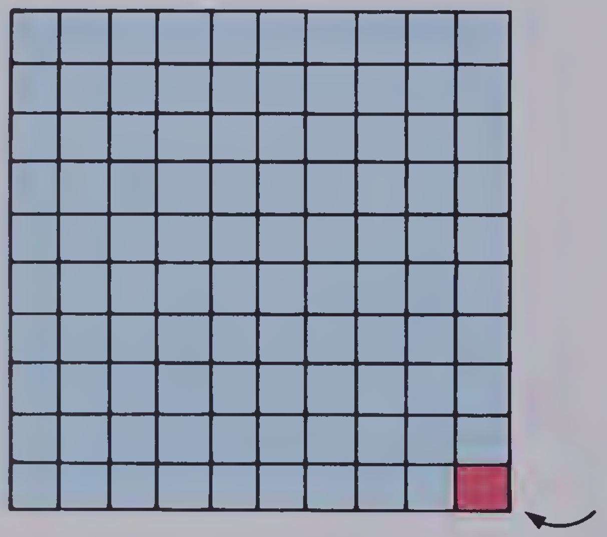
$\frac{1}{10} = 0.1$ "zero decimal one"

If we divide something into 100 equal parts, each part shows $\frac{1}{100}$. The decimal is 0.01.

$\frac{1}{100} = 0.01$ "zero decimal zero one"

How can we show 0.01?
It is hard to divide an orange or a pizza into 100 equal parts.

Let's look at the big square.
It is made up of 100 equal square parts.



Each part is 0.01 of the big square.

$\frac{1}{100}$ or 0.01

Let's say the big square shows 1.

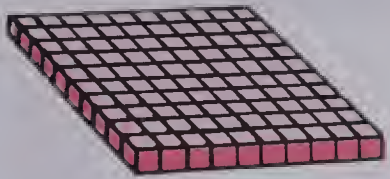
What does each group of smaller squares show?

Complete the chart in your notebook.

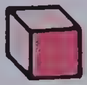
Number of square parts	Fraction	Decimal
10		
30		
90	$\frac{9}{10}$	
1		
5		0.05
2	$\frac{2}{100}$	
9		
16		

In Action

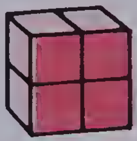
1. This "flat" shows 1.
It is made up of 100 equal cubes.
Write a fraction and a decimal
for each group of cubes.



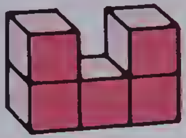
a)



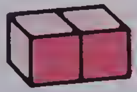
b)



c)



d)



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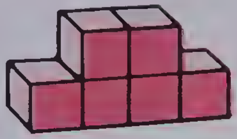

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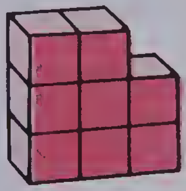
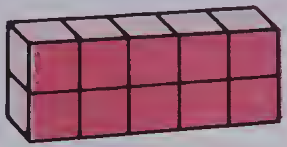
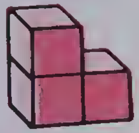


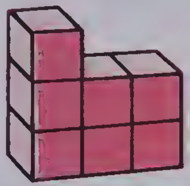
g)



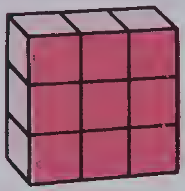
h)



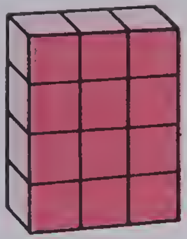
i)



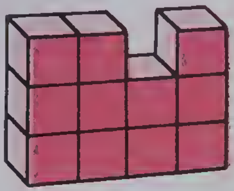
j)



k)



l)



2. Add.

0.2	0.1	0.1	0.6	0.3	0.01	0.01	0.06	0.04	0.06
0.2	0.4	0.2	0.1	0.5	0.01	0.03	0.01	0.04	0.03

3. Subtract.

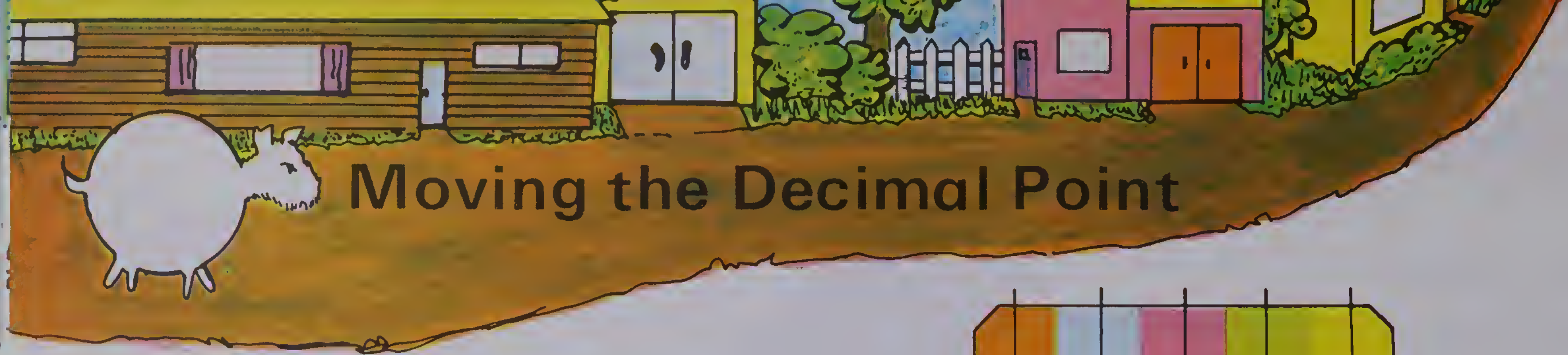
0.3	0.4	0.6	0.7	0.8	0.03	0.04	0.05	0.06	0.08
0.2	0.1	0.4	0.2	0.7	0.01	0.03	0.02	0.05	0.03

4. Add.

0.13	0.02	0.15	0.31	0.35	0.21	0.23	0.74	0.81
0.62	0.17	0.42	0.07	0.34	0.68	0.46	0.11	0.16

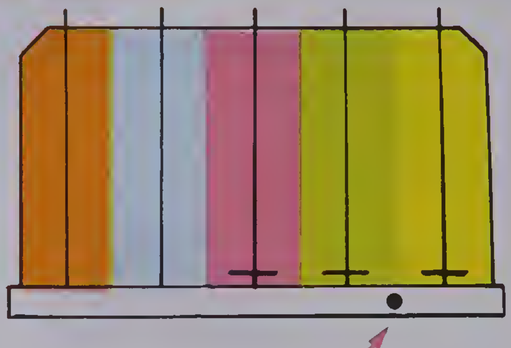
5. Subtract.

0.47	0.56	0.25	0.58	0.19	0.47	0.69	0.89	0.76
0.15	0.31	0.04	0.14	0.12	0.21	0.21	0.24	0.43



Moving the Decimal Point

We can show tenths and hundredths on the abacus.



With the decimal point here, we show 1 ten, 1, and 1 tenth

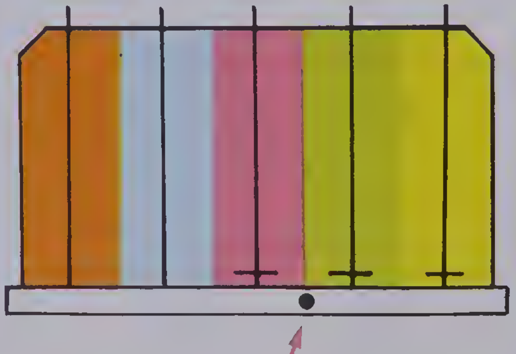
11.1

Read the number "eleven decimal one"

Complete the chart in your notebook.

	1 green	? yellow
1 red	? green	
1 red		? yellow

If we move the decimal point, we can show hundredths.



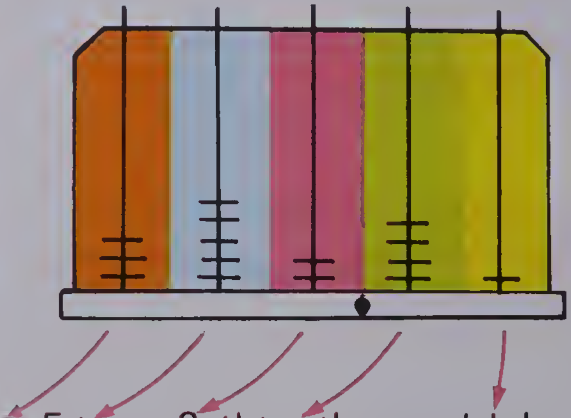
With the decimal point here, we show

1, 1 tenth, and 1 hundredth

1.11

Read the number "one decimal one one"

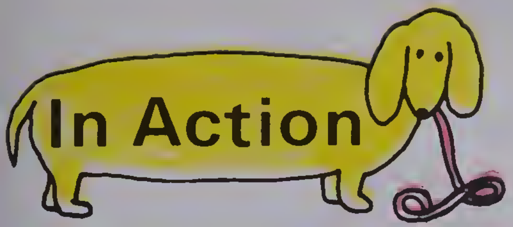
If we use more wires, we can also show tens and hundreds on the abacus.



3 hundreds, 5 tens, 2, 4 tenths, and 1 hundredth

300 + 50 + 2 + 0.4 + 0.01

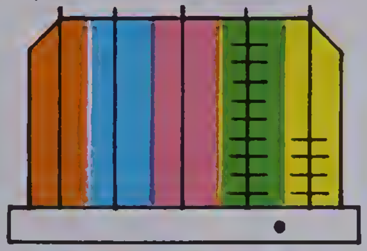
352.41



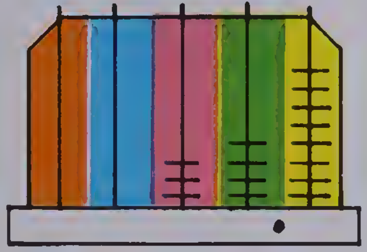
In Action

1. What is the number?
   Watch the decimal point!

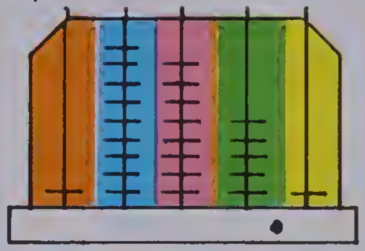
a)



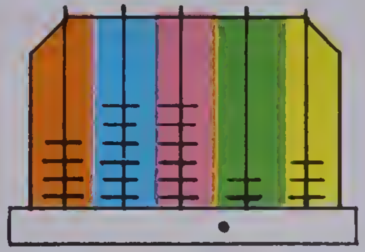
b)



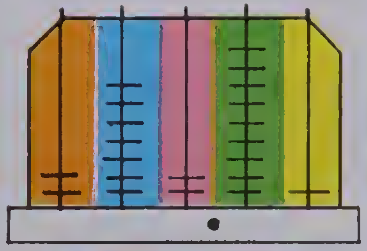
c)



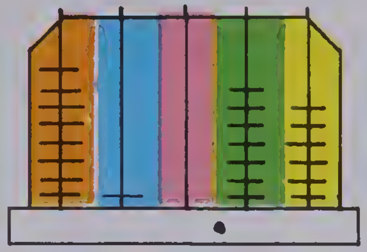
d)



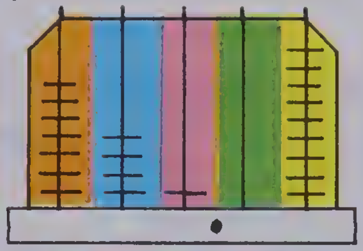
e)



f)



g)



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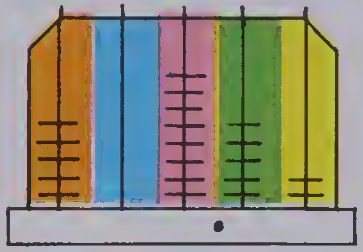


2. Complete the chart in your notebook.

🟦	🟦	🟦	1 green	? yellow
🟦	🟦	1 red	? green	🟦
🟦	1 blue	? red	🟦	🟦
1 orange	? blue	🟦	🟦	🟦
🟦	🟦	🟦	? green	1 yellow
🟦	🟦	? red	1 green	🟦
🟦	? blue	1 red	🟦	🟦
? orange	1 blue	🟦	🟦	🟦

3. Write the numeral.

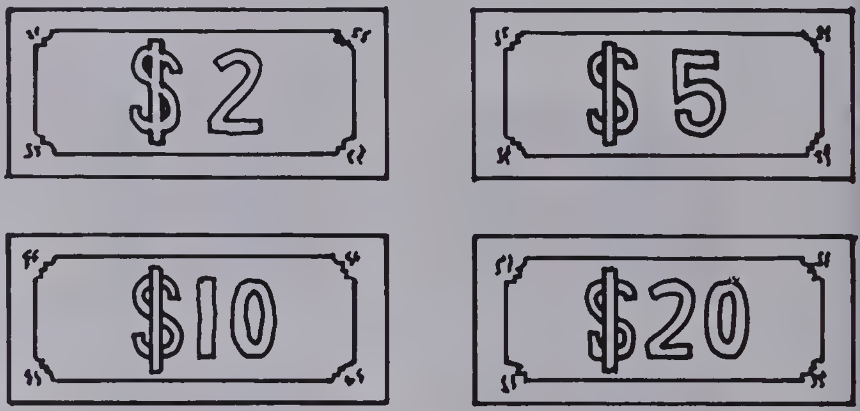
a) 3 hundreds, 3 tens, 3, 3 tenths, and 3 hundredths
b) 6 hundreds, 2 tens, 8, 6 tenths, and 7 hundredths
c) 9 hundreds, 9 tens, 4, 0 tenths, and 4 hundredths
d) 1 hundred, 0 tens, 7, 2 tenths, and 5 hundredths
e) 8 hundreds, 1 ten, 5, 4 tenths, and 8 hundredths

f) 400 + 20 + 1 + 0.2 + 0.04
g) 700 + 80 + 6 + 0.3 + 0.02
h) 300 + 50 + 2 + 0.8 + 0.01
i) 200 + 60 + 9 + 0.7 + 0.09
j) 500 + 30 + 0 + 0.1 + 0.06

4. If ├───┤ shows 0.1, draw a line segment to show 1.
   How long a line would you need to show 10?

Money

Use play money.
Count to 20 by ones, twos, fives, and tens.



How many $5 bills are equal to a $10 bill?
How many $2 bills are equal to a $20 bill?

Which bill has the same value as four $5 bills?
Which bill has the same value as five $2 bills?

Which is the greater amount:
one $10 bill or six $2 bills?
three $2 bills or one $5 bill?
two $10 bills or three $5 bills?

In Action

1. Use play money to show $20.
   How many ways can you do this?

2. Complete the chart in your notebook.

Amount	Bills	Coins
$ 9.75	one $5 bill, two $2 bills	? quarters
6.85	? $5 bill, ?	1 fifty-cent piece, ?
10.50	one ? bill	?
13.25	? $10 bill, ?	?
?	one $10 bill, one $5 bill, one $1 bill	3 dimes, 1 nickel, 1 penny
?	one $20 bill, one $2 bill	4 dimes, 7 pennies

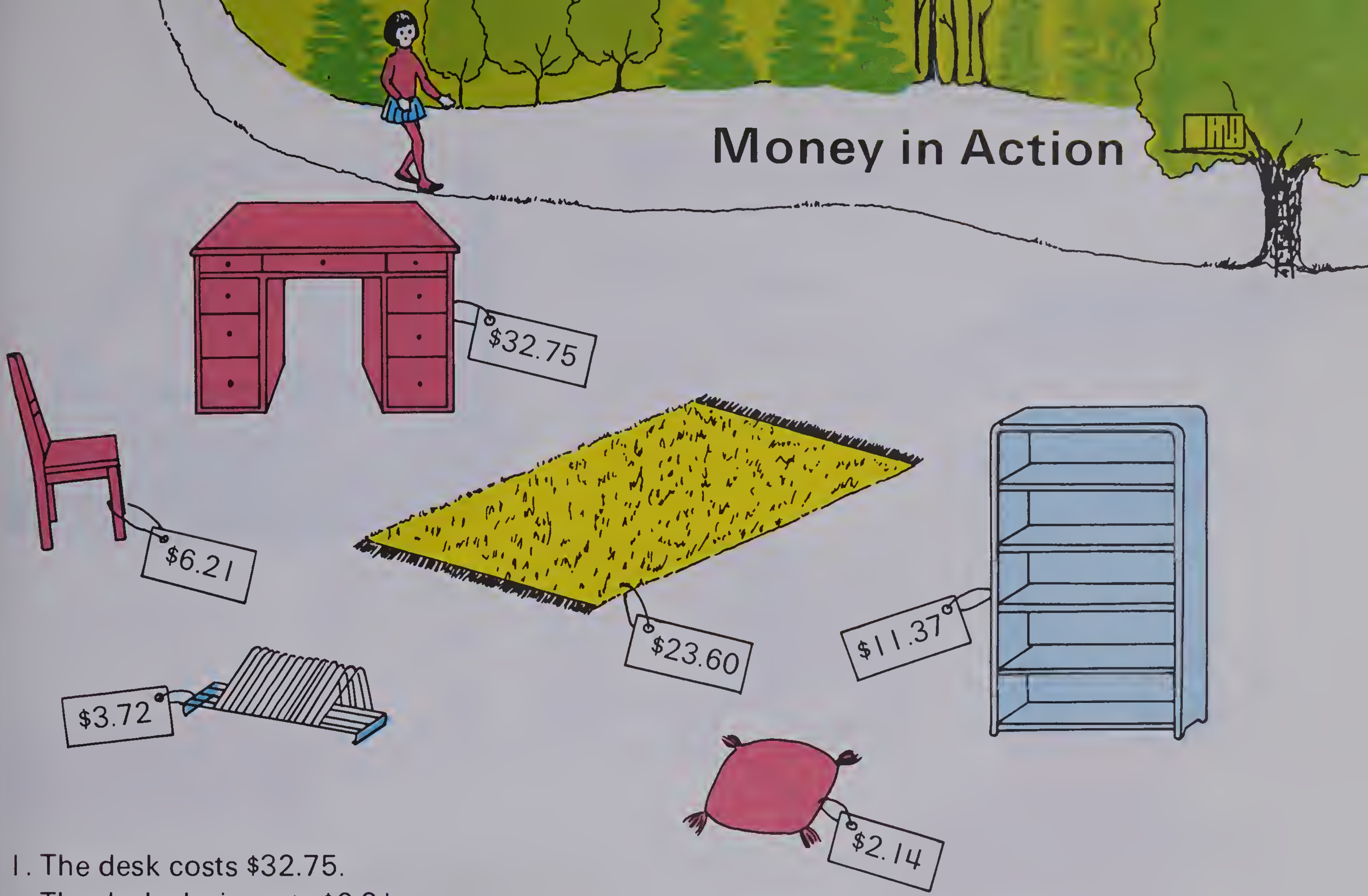
3. What is the total amount?

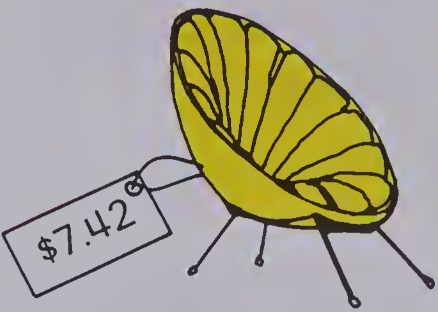
$1.25	$2.49	$12.84	$ 8.93
5.71	3.10	11.03	21.05

4. What is the difference in amount?

$7.24	$19.95	$27.25	$18.76
4.13	6.02	15.10	14.45

Money in Action





1. The desk costs $32.75.
   The desk chair costs $6.21.
   What is the total amount?

2. The record rack costs $3.72.
   The sales tax is $0.26.
   How much would you pay altogether?

3. What is the total cost of the shag rug and the cushion?

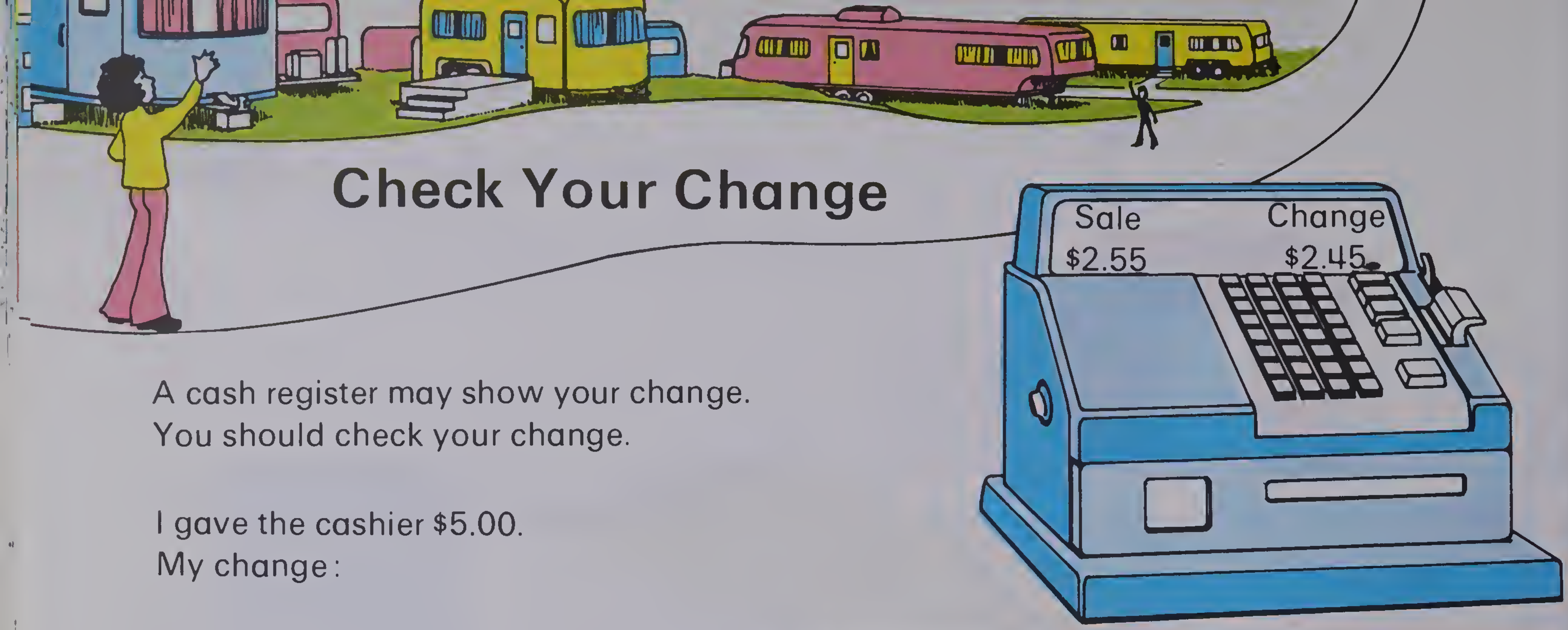
4. How much do the bookcase and basket chair cost?

5. Furnish your own room.
   How much does your furniture cost?
   Use play money to help you find the answer.

6. Find the total amount.

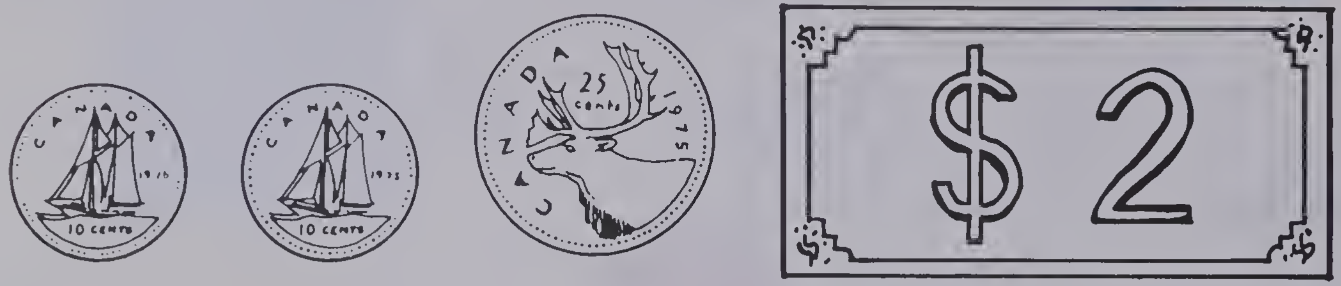
a) $25.30	b) $17.53	c) $14.85	d) $28.60	e) $20.00	f) $22.36
4.25	1.05	5.13	1.28	9.98	6.52

Check Your Change


Sale
$2.55
Change
$2.45

A cash register may show your change.
You should check your change.

I gave the cashier $5.00.
My change:


CANADA
10 CENTS
CANADA
10 CENTS
CANADA
25 CENTS
1975
$ 2

Counting my change:
$2.55, $2.65, $2.75, $3.00, $5.00.

My change is $2.45!

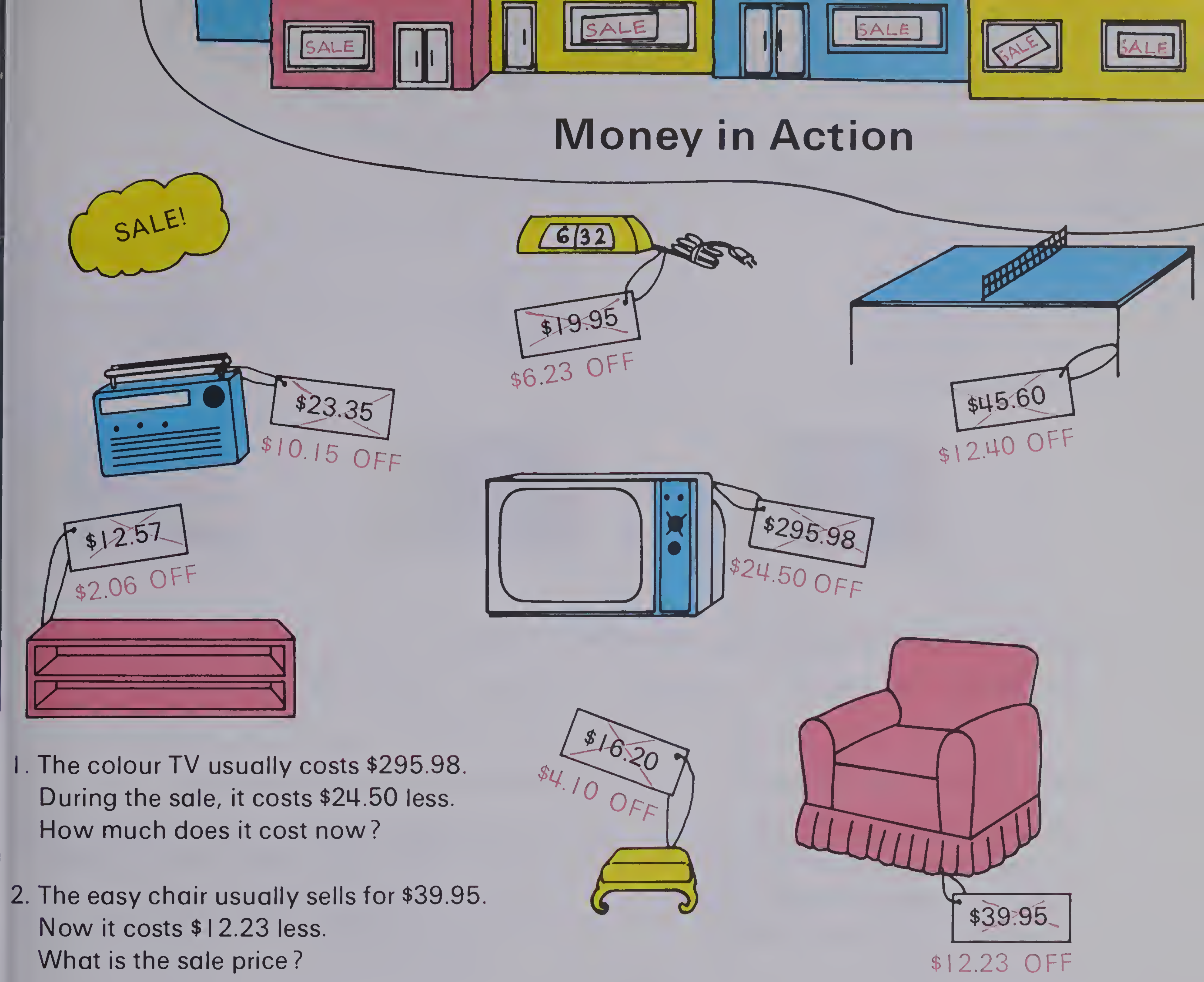
In Action

1. What is your change?
   Complete the table in your notebook.

Sale	Cash	Difference	Change
$ 1.65	$ 2.00	$0.35	? quarter, ? dime
$ 2.75	$ 4.00	$1.25	?
$ 3.98	$ 5.00		
$ 7.62	$10.00		
$14.27	$20.00		

2. Marty bought a desk lamp that cost $4.15.
   He gave the cashier $5.00.
   How much change did he receive?

Money in Action


SALE
SALE
SALE
SALE
SALE
SALE!
6 32
$19.95
$6.23 OFF
$45.60
$12.40 OFF
$23.35
$10.15 OFF
$12.57
$2.06 OFF
$295.98
$24.50 OFF
$16.20
$4.10 OFF
$39.95
$12.23 OFF

1. The colour TV usually costs $295.98.
   During the sale, it costs $24.50 less.
   How much does it cost now?

2. The easy chair usually sells for $39.95.
   Now it costs $12.23 less.
   What is the sale price?

3. a) How much would you usually pay for the games table and the radio?
   b) How much less would you pay if you bought them on sale?
   c) What would the total cost be?

4. How much would you pay for the clock on sale?

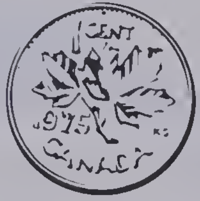
5. What is the sale price of the bookcase and footstool?

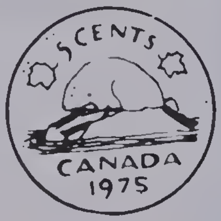
6. Furnish your own playroom.

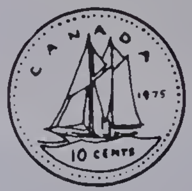
   a) How much would you save by buying the furniture during the sale?
   b) What would the total cost be?

Retrace Your Steps

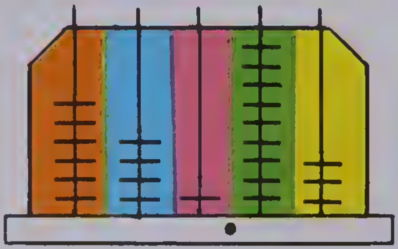
1. 1 dollar shows 1. Write a fraction and a decimal.

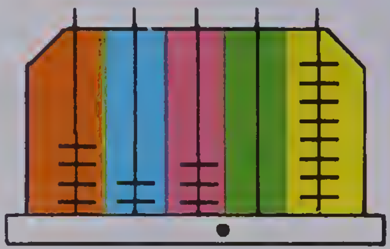
a)


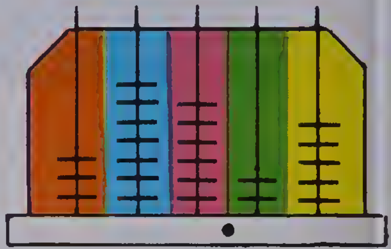
b)


c)


2. What is the number?

a)


b)


c)


3. Write the meaning and the long form of each number.

a) 198.54 b) 935.17 c) 409.36 d) 780.91 e) 214.78 f) 563.42

4. Which is the smaller amount:

a) one $10 bill or six $2 bills?
b) one $20 bill or three $5 bills?
c) three $10 bills or twelve $2 bills?
d) one $20 bill or five $5 bills?

5. Show your change from $10.00.

a) You bought a large cushion that cost $6.79.
b) You bought a bedspread that cost $8.98.
c) You bought a mirror that cost $7.49.
d) You bought a book that cost $5.19.

6. Add the amounts.

a) $8.23
1.72

b) $16.41
2.08

c) $13.60
5.29

7. Subtract the amounts.

a) $27.97
5.02

b) $34.86
1.23

c) $35.52
4.30

8. 37 dimes. How many cents?
10 × 37 = ?
37 dimes = (10 + 10 + 10 + 7) dimes
10 dimes = 100 cents
7 dimes = 70 cents
37 dimes = (100 + 100 + 100 + 70) cents or 370 cents
10 × 37 = 370

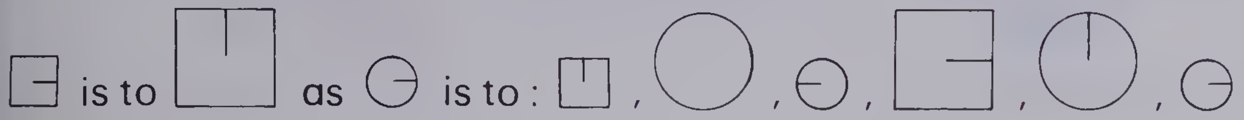
It is easy to multiply by 10!

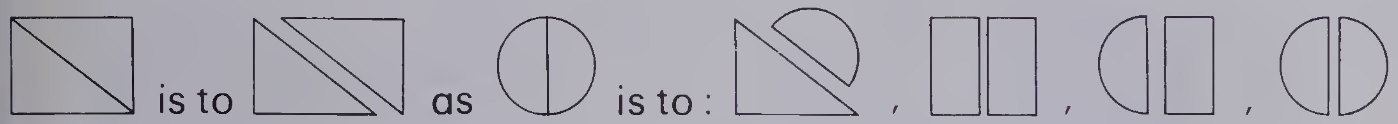
a) 10 × 10 = ?
b) 10 × 25 = ?
c) 10 × 47 = ?
d) 10 × 31 = ?

Byway

What's the Rule?

Draw the correct picture in your notebook.


is to
as
is to :


is to
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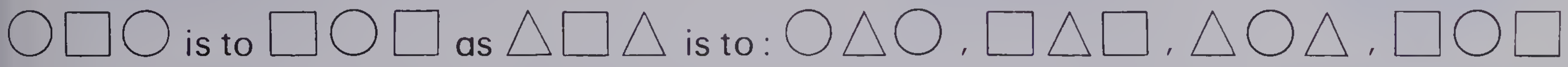
is to :


is to
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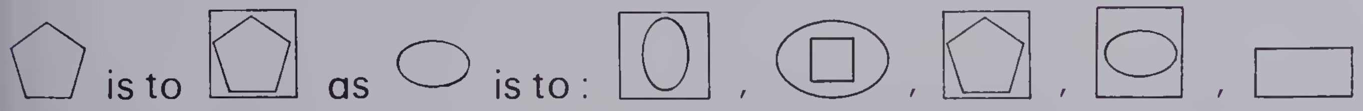
is to :


is to
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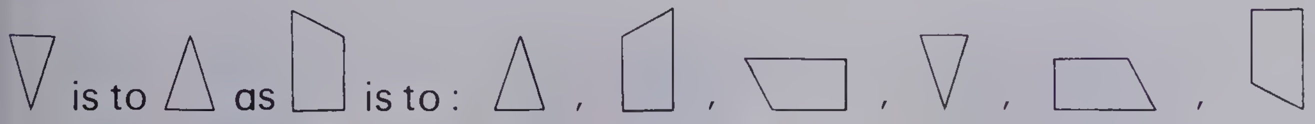
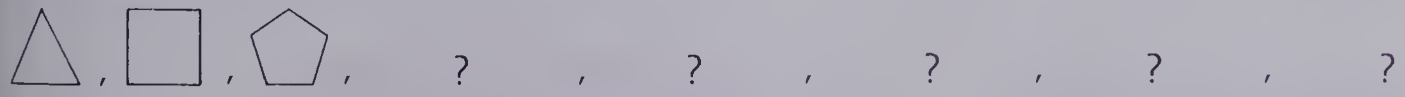
is to :

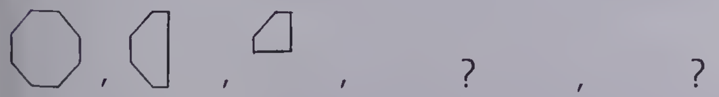

is to
as
is to :

Draw a puzzle like the ones above.
Give it to someone in your group to solve.

Patterns

Continue the patterns in your notebook.

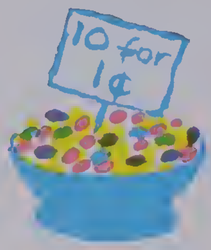


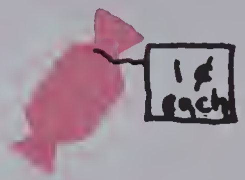


Draw a pattern for someone in your group to continue.

Exchanging 10 for 1

You can get 10 pennies for 1 dime.
You can get 10 $1 bills for 1 $10 bill.

You can trade 10 of these 

for 1 of these. 

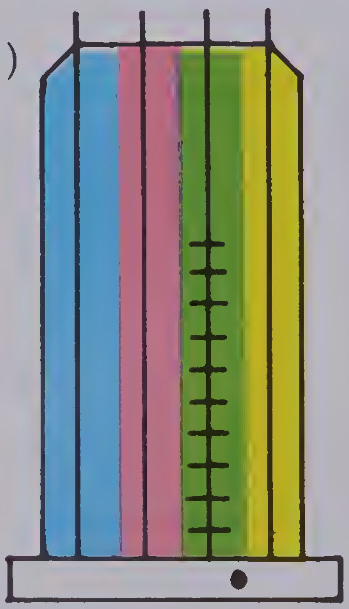
Can you think of other 10 for 1 exchanges?

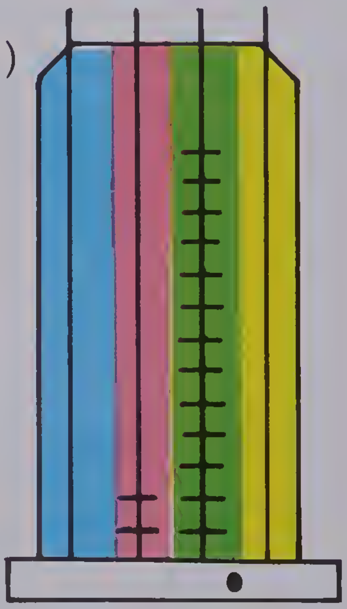
If you exchanged 10 for 1, what would you get?

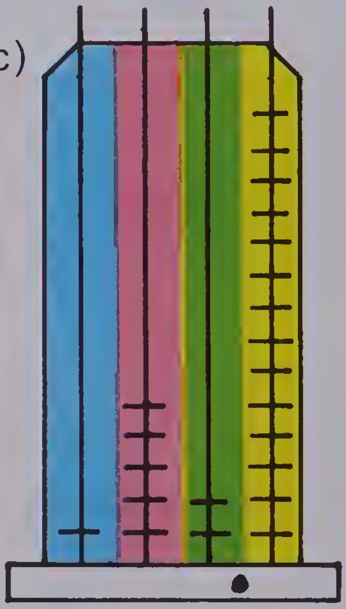
a) 10 dimes
b) 10 nickels
c) 10 $2 bills
d) 10 green discs on an abacus
e) 10 yellow discs on an abacus
f) 10 tenths
g) 10 pennies
h) 10 mm
i) 10 $5 bills

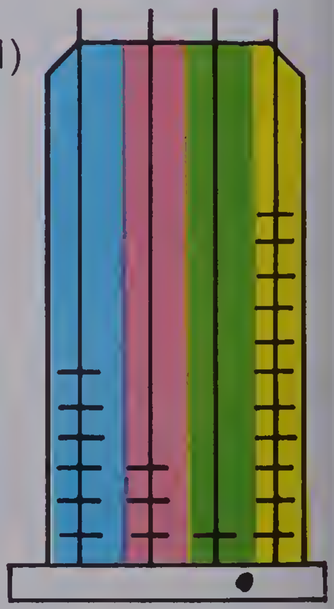
In Action

1. Exchange 10 for 1. Draw a picture. Write the numeral.

a) 

b) 

c) 

d) 

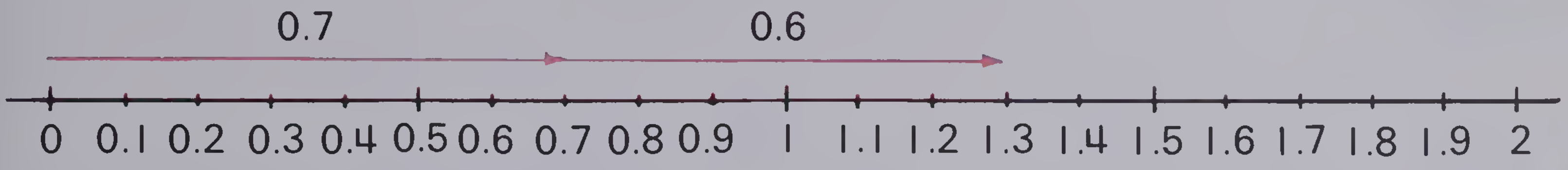
2. Exchange 10 for 1. Write the meaning.

a) 14 tens = 1 hundred and ? tens
b) 17 tenths = 1 and ? tenths
c) 2 and 13 tenths = ?
d) 5 and 16 tenths = ? and 6 tenths
e) 4 tens, 18, and 3 tenths
f) 7 tens, 11, and 6 tenths
g) 12 tens, 8, and 1 tenth
h) 5 hundreds, 3 tens, 8, and 11 tenths

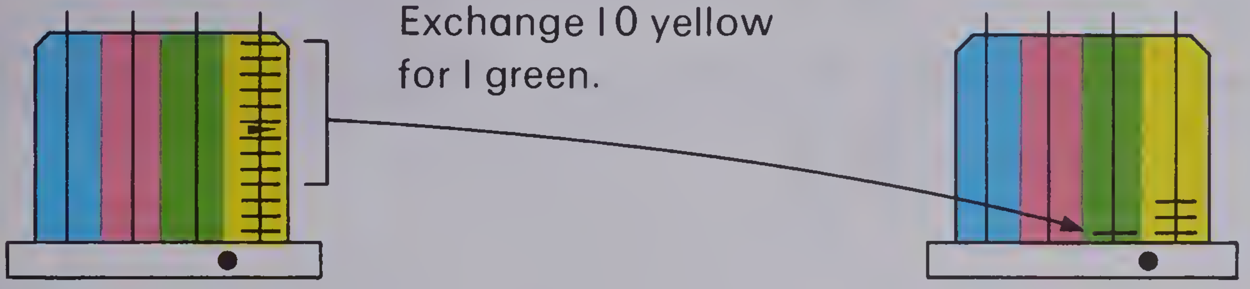
Exchanging Tenths for Ones

Add.
0.7
0.6

You can use a number line to find the answer.


0.7
0.6
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2

Or you can use an abacus.



Exchange 10 yellow for 1 green.

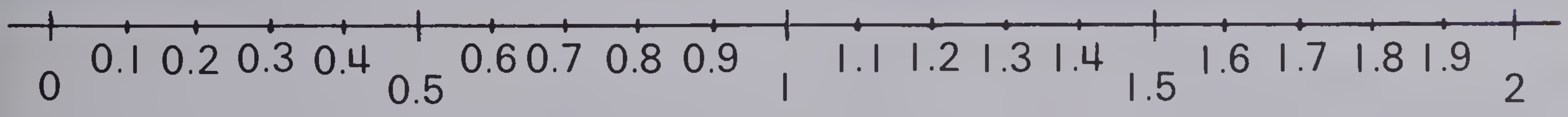
13 tenths

1 and 3 tenths

Add.
0.7
0.6
1.3

In Action

1. Add. Use the number line to find the answers.


0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2

a) 0.6
0.5

b) 0.7
0.7

c) 0.7
0.8

d) 0.8
0.5

e) 0.6
0.8

f) 0.9
0.4

2. Add. Write the meaning of the sum.
Exchange 10 for 1. Write the answer.

a) 0.7
0.4

11 tenths
= 1 and ? tenth

b) 2.3
0.9

2 and ? tenths
= 3 and ? tenth

c) 0.6
1.7

d) 4.8
0.5

e) 1.9
0.9

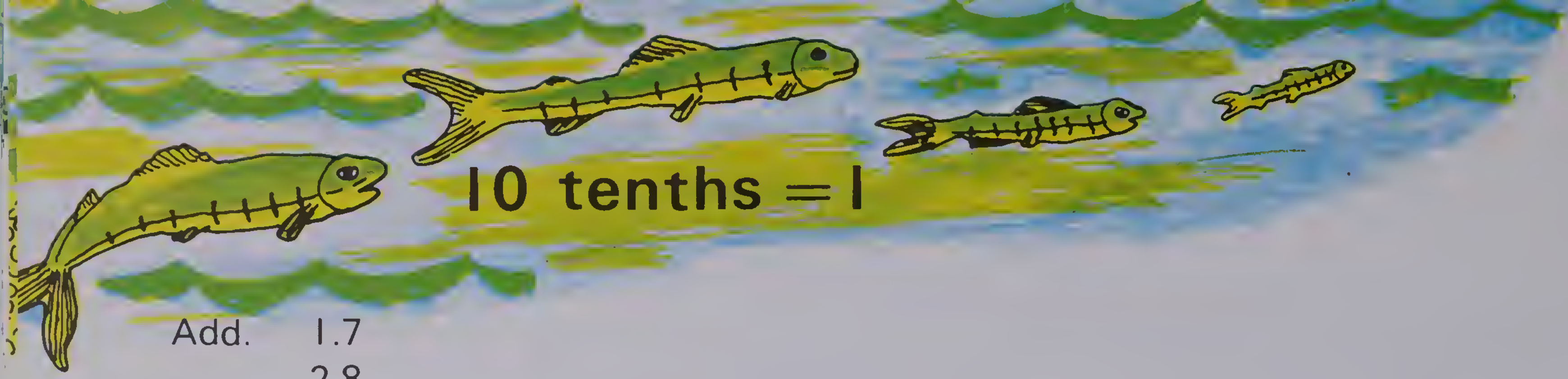
f) 0.6
3.8

g) 0.4
2.9

h) 5.7
0.7

i) 7.5
1.6

j) 0.5
1.8



10 tenths = 1

Add. 1.7
2.8

You can use the meaning of the numbers to help you add.

1.7 = 1 and 7 tenths
2.8 = 2 and 8 tenths
3 and 15 tenths

Exchange 10 tenths for 1.

4.5 = 4 and 5 tenths

It's quicker to add like this.

1.7 =	1	7
2.8 =	2	8
	3	15

Exchange 10 tenths for 1.

4.5 = 4 5

Remember the abacus!
Yellow stands for tenths.
Green stands for ones.

In Action

1. Add.
Write the meaning to find the answers.

a) 2.9 = 2 and 9 tenths
6.7 = 6 and 7 tenths

b) 3.6 = 3 and ? tenths
4.8 = ? and 8 tenths

c) 5.9
2.4

d) 7.3
0.9

e) 4.5
1.6

f) 5.4
2.8

g) 3.9
2.1

h) 4.7
2.3

i) 5.5
3.8

j) 2.2
1.9

2. Add.
Use coloured columns to find the answers.

a) 6.1
1.9

b) 3.7
0.5

c) 4.3
0.8

d) 2.6
5.7

e) 4.6
3.5

f) 2.2
6.8

g) 0.1
8.9

h) 7.9
1.2

i) 2.3
6.7

j) 5.7
3.5

k) 4.8
3.4

l) 1.4
7.6

Exchanging Ones for Tenths

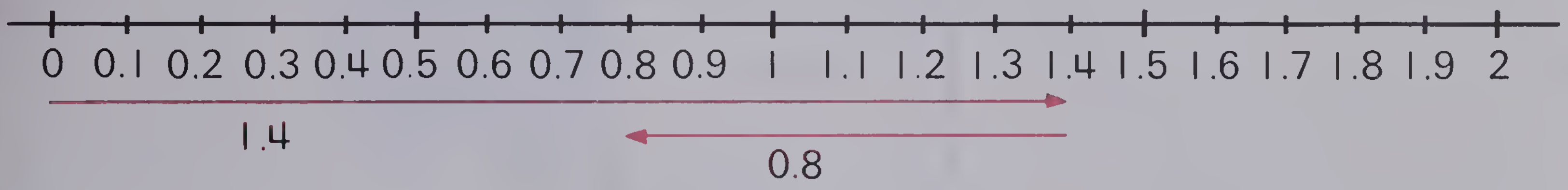
If you exchanged 1 for 10, what would you get?

a) 1 dime
b) 1 $1 bill
c) 1 $5 bill
d) 1 red disc on an abacus
e) 1 green disc on an abacus
f) 1

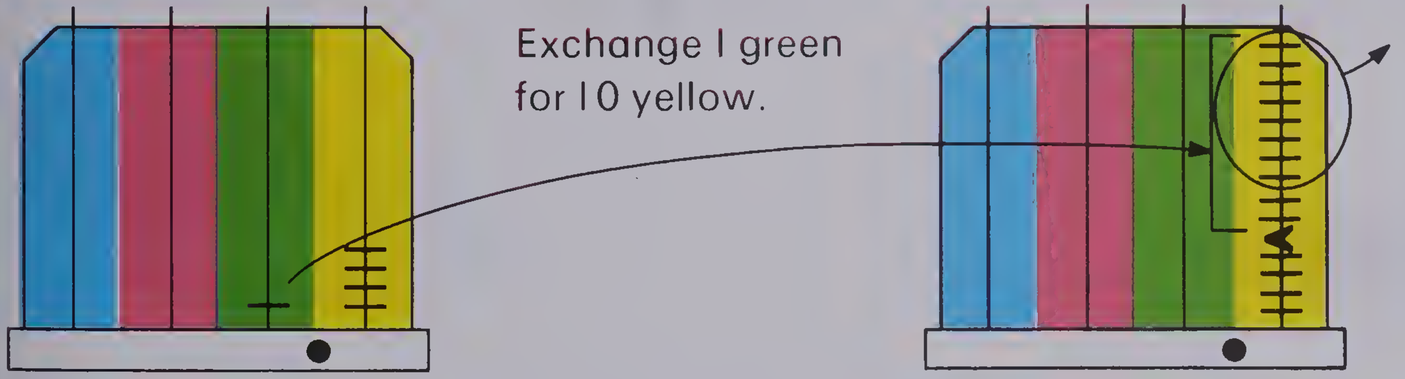
Can you think of other 1-for-10 exchanges?

CANADA
10 CENTS
1 CENT
197?

To subtract $\begin{array}{r}1.4\\0.8\\\hline\end{array}$ you can use a number line.


0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2
1.4
0.8

Or you can use an abacus.


Exchange 1 green
for 10 yellow.

1 and 4 tenths

14 tenths

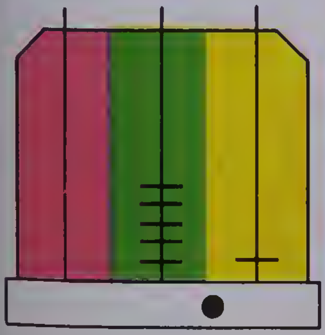
Subtract.

$$\begin{array}{r}1.4\\0.8\\\hline 0.6\end{array}$$

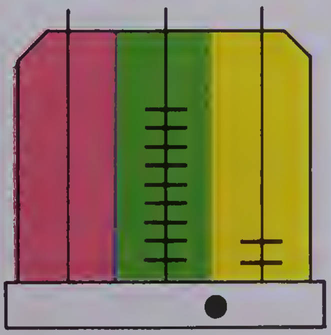
In Action

1. Exchange 1 green disc for 10 yellow discs.
Draw a picture.

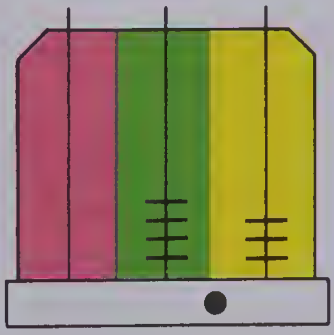
a)



b)



c)



2. Exchange 1 for 10 tenths.
Write the meaning of the number.

a) 2.5
b) 5.1
c) 3.8
d) 7.3
e) 6.2
f) 9.4
g) 8.6
h) 4.7

3. Subtract.
Use a number line to help you.

a) $\begin{array}{r}2.4\\0.6\\\hline\end{array}$
b) $\begin{array}{r}3.1\\0.9\\\hline\end{array}$
c) $\begin{array}{r}1.3\\0.5\\\hline\end{array}$
d) $\begin{array}{r}4.0\\0.7\\\hline\end{array}$

1 = 10 tenths

Subtract. 4.2
1.8

You can use the meaning of the numbers to help you subtract.

4.2 = 4 and 2 tenths
1.8 = 1 and 8 tenths

Exchange 1 for 10 tenths.

4.2 = 3 and 12 tenths
1.8 = 1 and 8 tenths
2.4 = 2 and 4 tenths

You can use coloured columns in subtraction, too.

4.2 = 4 2
1.8 = 1 8

Exchange 1 for 10 tenths.

4.2 = 3 12
1.8 = 1 8
2.4 = 2 4

This is an easy way!

In Action

1. Subtract.
Exchange 1 for 10 tenths.
Write the meanings to find the answers.

a) 5.3 = 4 and 13 tenths
3.9 = 3 and 9 tenths

b) 7.0
1.2

c) 9.1
0.5

d) 6.4
2.6

e) 9.0
5.1

f) 7.2
3.9

g) 8.3
6.7

2. Subtract.
Use coloured columns to find the answers.

a) 6.0
0.7

b) 7.5
1.6

c) 8.1
4.5

d) 9.3
7.6

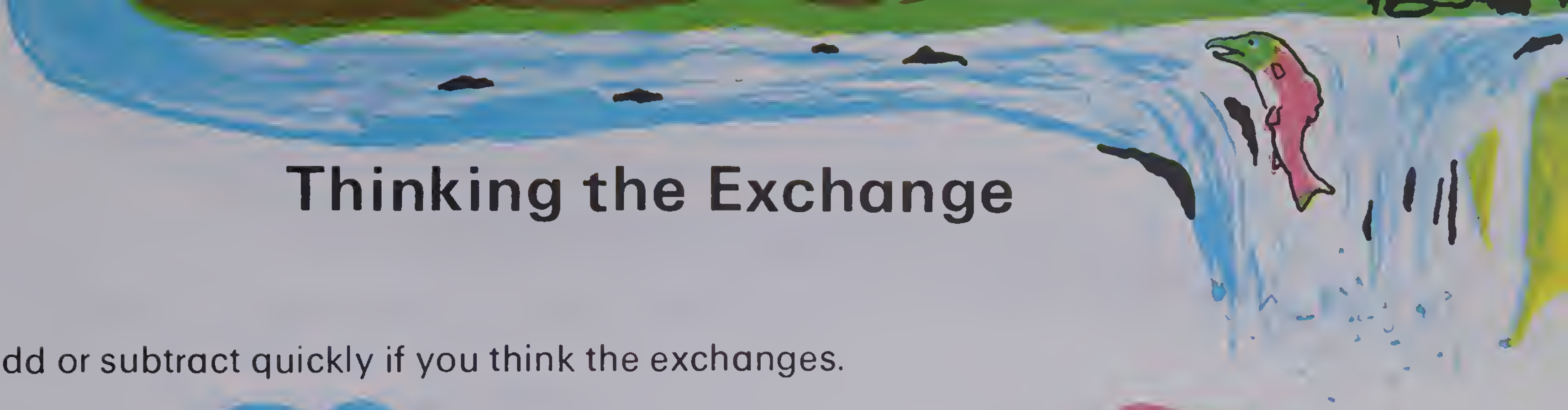
e) 7.4
2.9

f) 8.0
5.8

g) 8.1
2.9

h) 9.4
6.5

3. A sockeye fry is about 2.5 cm long. A fingerling is about 13.4 cm long. How much longer is a fingerling than a fry?



Thinking the Exchange

You can add or subtract quickly if you think the exchanges.

Add.
4.8
3.7
8.5

Think 15
Remember 1
Think 4, 8

Add.
25.8
13.9
39.7

Think 17
Remember 1
Think 4, 9
Think 3

Subtract.
9.1
6.6
2.5

Think 11, 5
Remember 8
Think 8, 2

Subtract.
56.4
12.8
43.6

Think 14, 6
Remember 5
Think 5, 3
5, 4

Remember to keep the decimal points in line!

In Action

1. Add. Exchange 10 tenths for 1. Think the exchange.

a) 24.5
31.7

Think 12
Remember?
Think 2,6
5

b) 5.3
2.7

c) 1.9
4.6

d) 2.5
45.6

e) 60.4
38.6

f) 21.7
57.4

g) 43.5
32.8

h) 85.4
13.9

i) 44.9
51.5

2. Subtract. Exchange 1 for 10 tenths. Think the exchange.

a) 97.2
60.8

Think 12, 4
Remember ?
Think 6,6
9,3

b) 9.1
6.3

c) 8.0
4.7

d) 76.2
3.8

e) 85.3
61.9

f) 96.0
50.4

g) 79.1
42.6

h) 97.2
74.3

i) 88.0
30.5

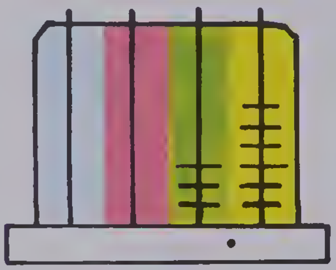
Retrace Your Steps

1. Exchange 10 tenths for 1.
Write the meaning.
   - a) 19 tenths
   - b) 3 and 14 tenths
   - c) 7 and 10 tenths
   - d) 2 tens, 6, and 13 tenths
   - e) 5 tens, 0, and 16 tenths
   - f) 4 hundreds, 7 tens, 2, and 18 tenths

2. Exchange 1 for 10 tenths.
Write the meaning of the number.
   - a) 7.2
   - b) 4.0
   - c) 94.1
   - d) 61.0
   - e) 36.3
   - f) 145.7
   - g) 382.4
   - h) 518.2
   - i) 9.5
   - j) 72.8

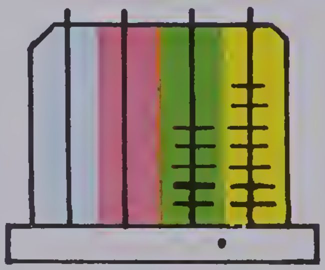
3. Add the number below the abacus to the number shown on the abacus.

a)



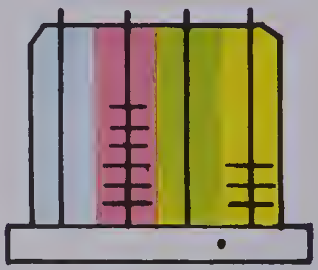
4.9

b)



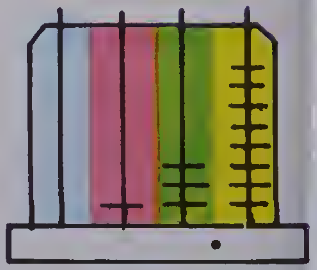
3.6

c)



25.8

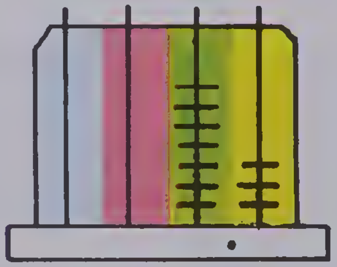
d)



70.5

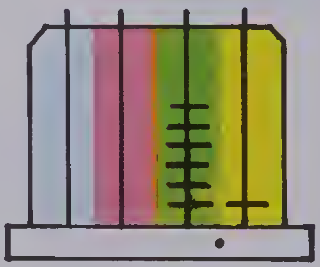
4. Subtract the number below the abacus from the number shown on the abacus.

a)



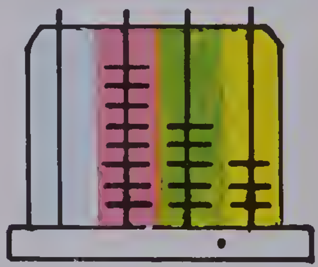
3.8

b)



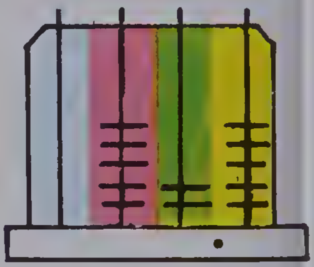
1.9

c)



52.6

d)



20.7

5. Add. Think the exchange.

a) $\begin{array}{r}1.5\\ \underline{4.7}\end{array}$

b) $\begin{array}{r}5.4\\ \underline{2.6}\end{array}$

c) $\begin{array}{r}70.8\\ \underline{8.9}\end{array}$

d) $\begin{array}{r}3.9\\ \underline{84.7}\end{array}$

e) $\begin{array}{r}36.5\\ \underline{61.9}\end{array}$

f) $\begin{array}{r}45.7\\ \underline{20.4}\end{array}$

6. Subtract. Think the exchange.

a) $\begin{array}{r}9.1\\ \underline{2.8}\end{array}$

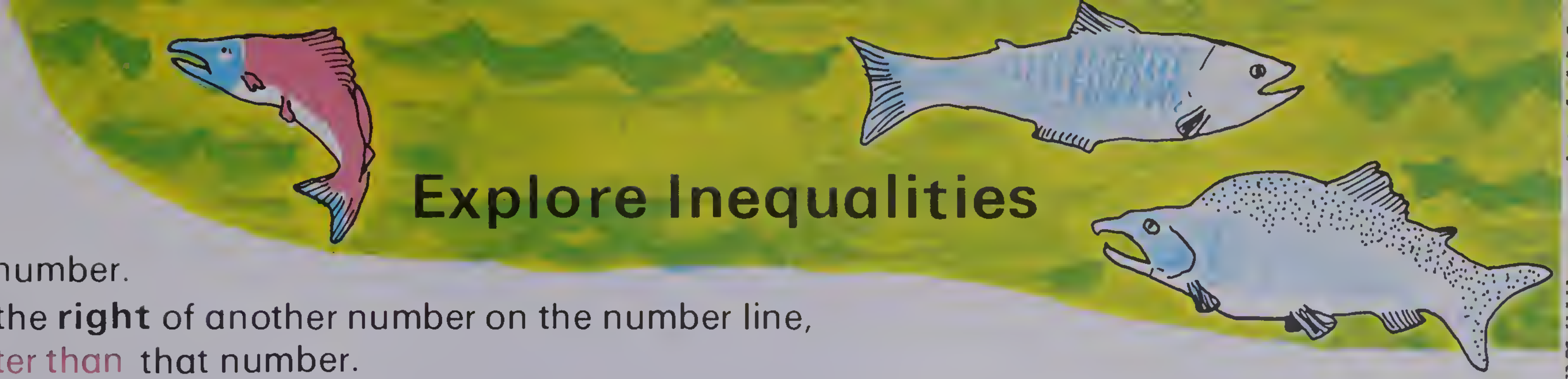
b) $\begin{array}{r}7.0\\ \underline{5.3}\end{array}$

c) $\begin{array}{r}19.2\\ \underline{3.9}\end{array}$

d) $\begin{array}{r}98.3\\ \underline{6.6}\end{array}$

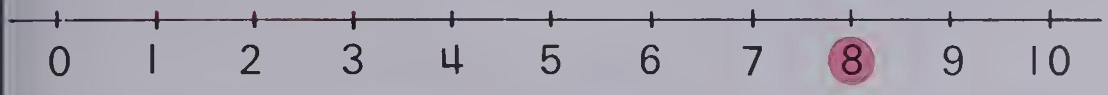
e) $\begin{array}{r}94.2\\ \underline{71.3}\end{array}$

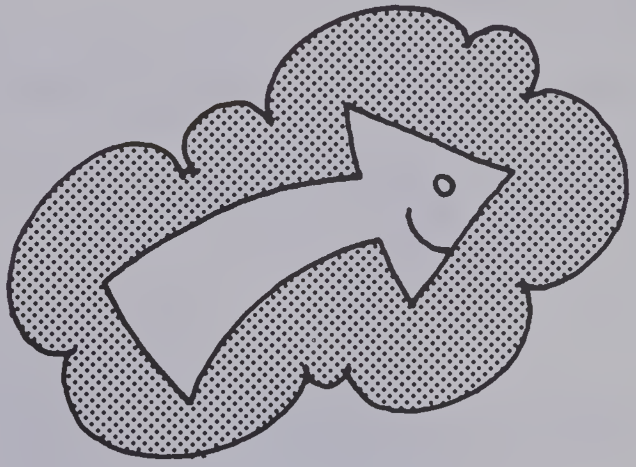
f) $\begin{array}{r}86.1\\ \underline{40.4}\end{array}$



Explore Inequalities

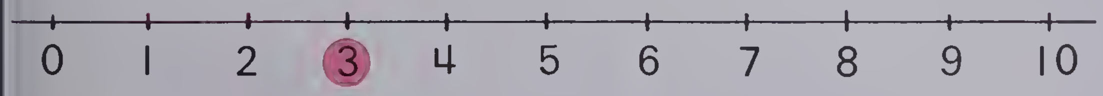
I am any number.
If I am to the **right** of another number on the number line,
I am greater than that number.

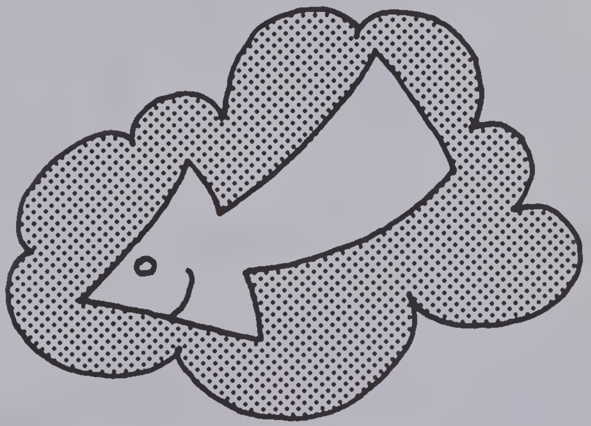




I am 8.
I am greater than what numbers on the number line?
List the numbers like this: $8 > 2$.

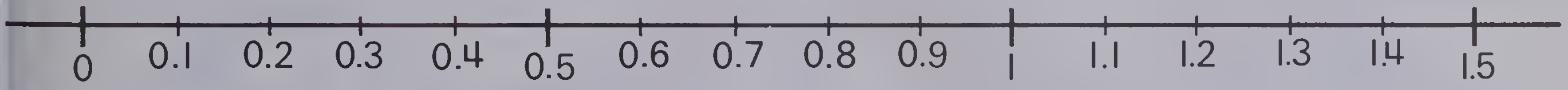
I am any number.
If I am to the **left** of another number on the number line,
I am less than that number.





I am 3.
I am less than what numbers on the number line?
Make a list like this: $3 < 7$.

In Action



1. Write sentences showing numbers greater than these. Use the number line.

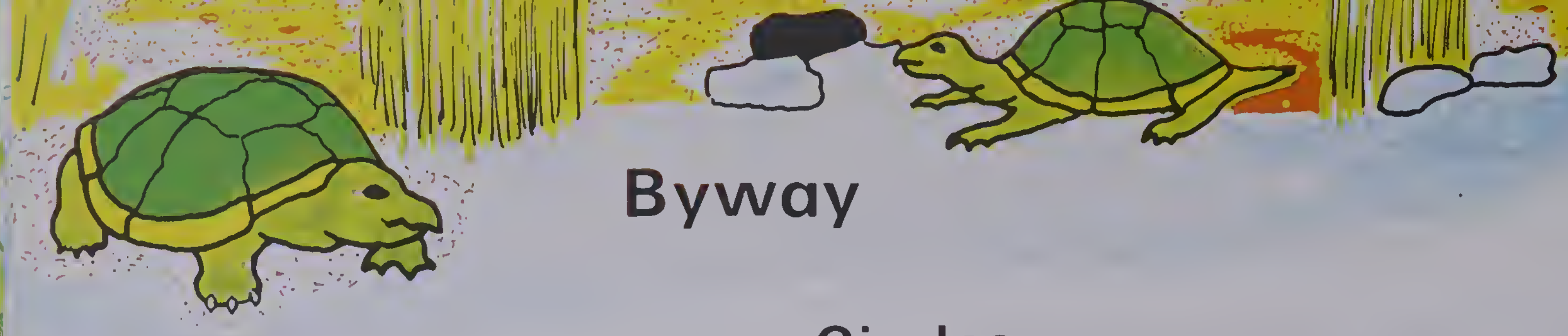
   a) 0.6 b) 1.1 c) 0.9 d) 1.4

2. Write sentences showing numbers less than these. Use the number line.

   a) 0.2 b) 1.3 c) 0.8 d) 1.5

3. Complete.

   a) $0.7 > ?$
   b) $1.2 < ?$
   c) $0.3 < ?$
   d) $1.0 > ?$
   e) $0.5 < ?$
   f) $0.4 > ?$
   g) 0.4 ? 1.1
   h) 1.5 ? 0.8
   i) 0.7 ? 1.2
   j) 1.0 ? 0.1
   k) 0.2 ? 1.2
   l) 0.6 ? 0.5

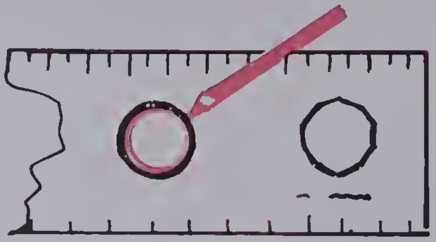


Byway

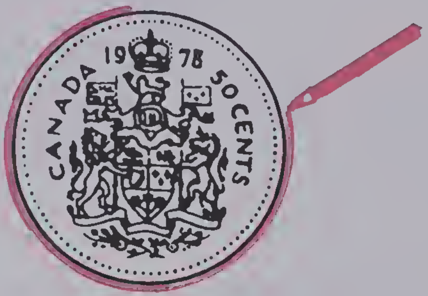
Circles

You can draw circles using different objects.

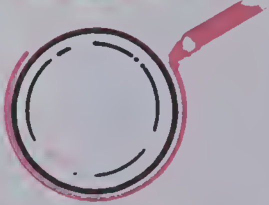
You can use your *mathways* ruler,



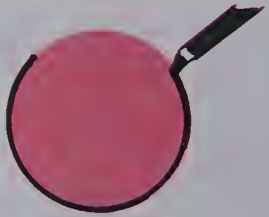
draw around a coin,



draw around a lid,



or draw around a shape.

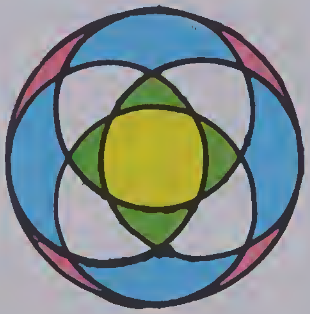


What else can you use to draw circles?

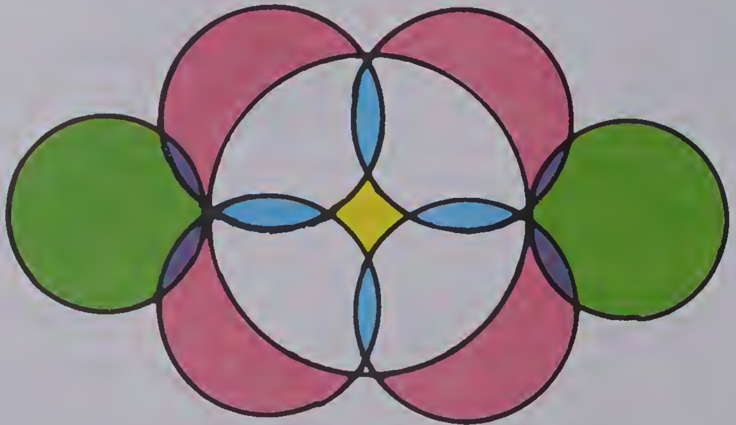
Draw circles of different sizes.

Patterns with Circles

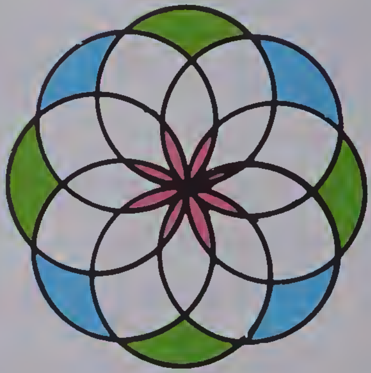
Copy the patterns.



Use your *mathways* ruler.



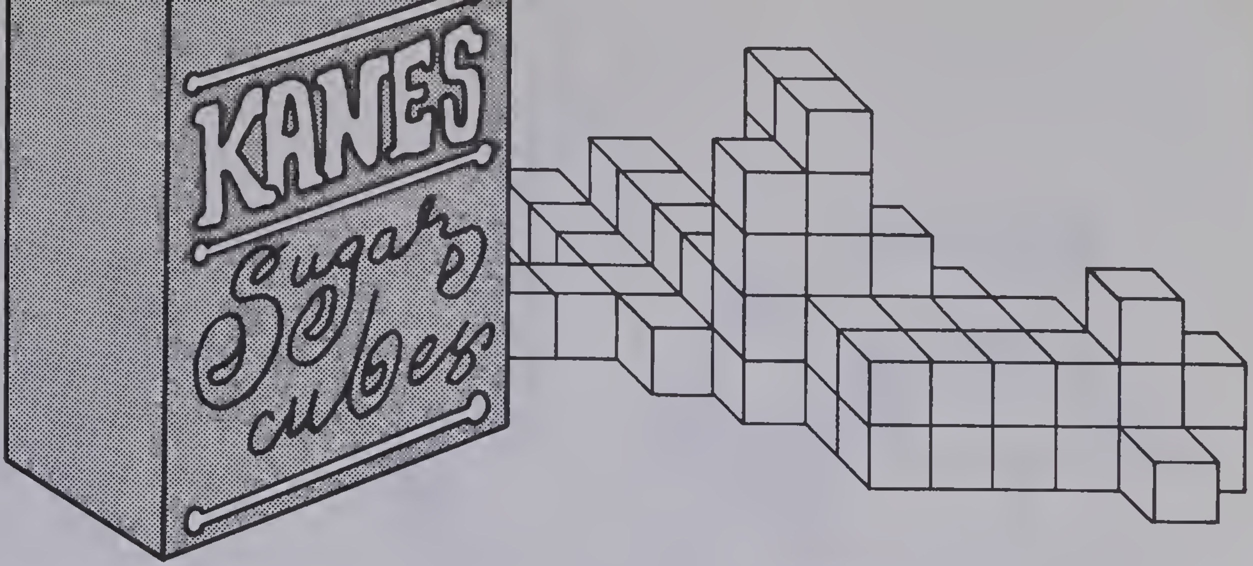
Use coins.



Use something else.

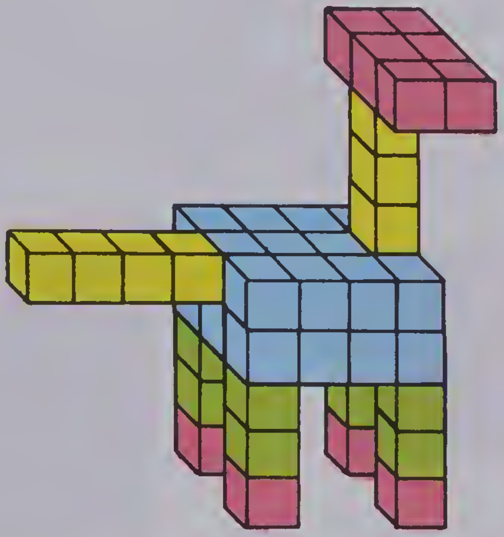
Make up other circle patterns for a friend to copy.

Explore Volume



Use small cubes.
Build something with them.
How many cubes did you use?
What is the volume?

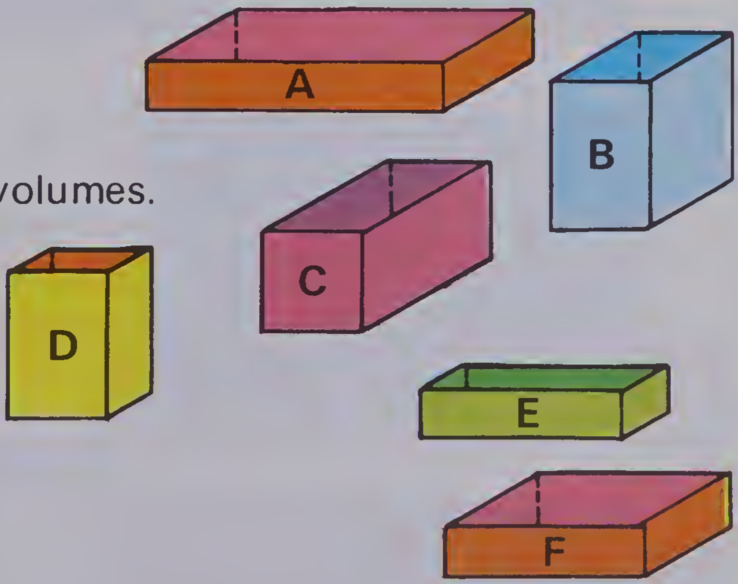
We used 49 cubes that fit together to build the dog.
The volume of the dog is 49 cm^3 (cubic centimetres).



Build a model of an elephant.
What is the volume of its trunk?
What is the volume of its body?
Build a fort and find its volume.

If you fill a box with 1 cm cubes,
you can find the volume in cubic centimetres.

In Action



Pick 6 different boxes.
Label them **A**, **B**, **C**, **D**, **E**, **F**.
Guess the order of the boxes, from smallest to largest volumes.
Write the order in your notebook.

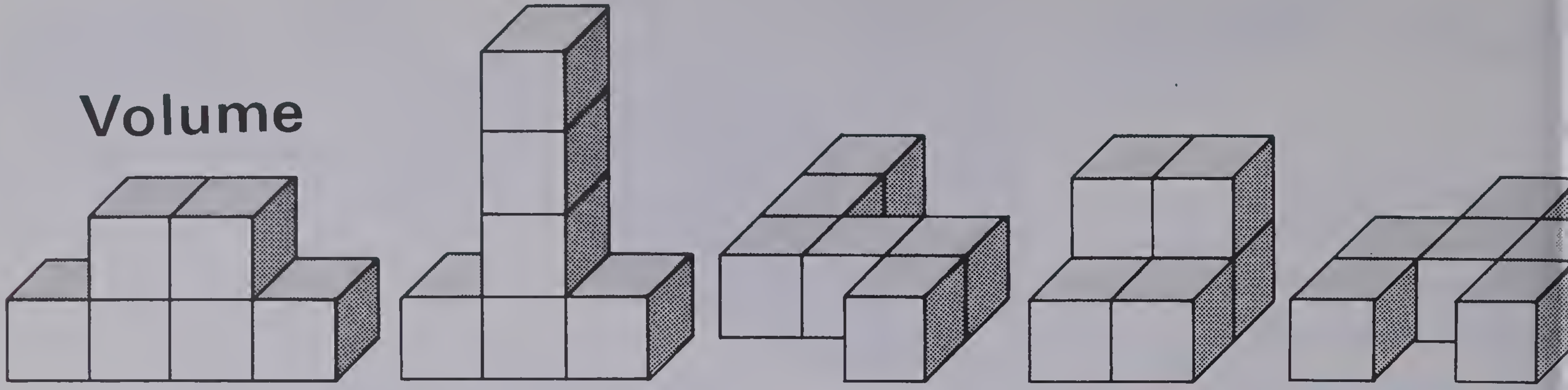
Guess the number of cubes each box holds.
Then, fill the box with cubes to find its volume.

Complete a chart in your notebook.

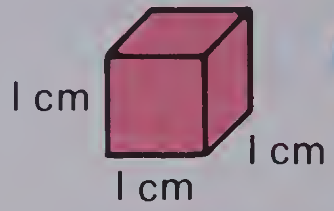
Box	I think it holds	It holds	Volume
A	28 cubes	30 cubes	30 cubic units

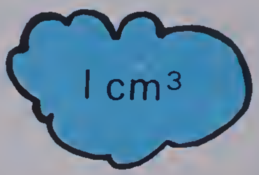
Now, write the correct order, from smallest to largest.

Volume

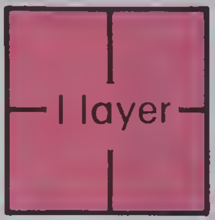


Use I cm cubes that fit together.
Make a layer of cubes to cover the pattern.
Build the number of layers written on the pattern.
How many I cm cubes did you use?
What is the volume?





1.



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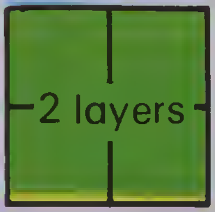
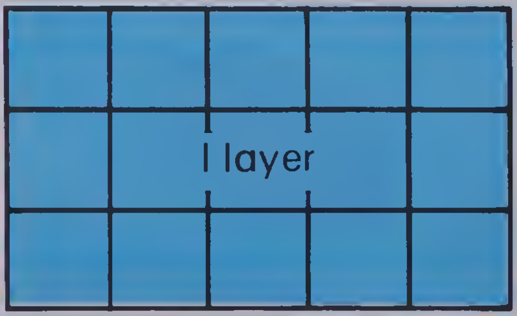


3.



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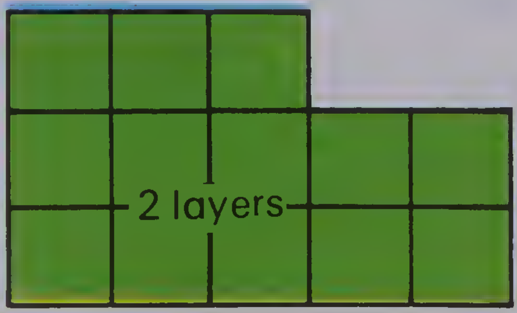

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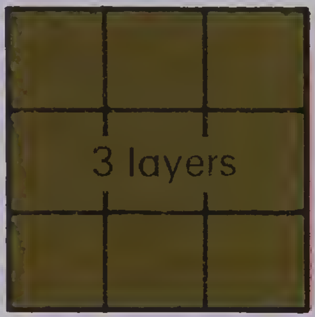

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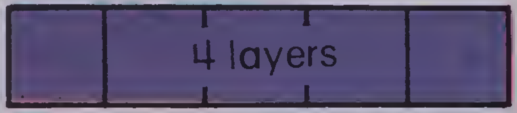

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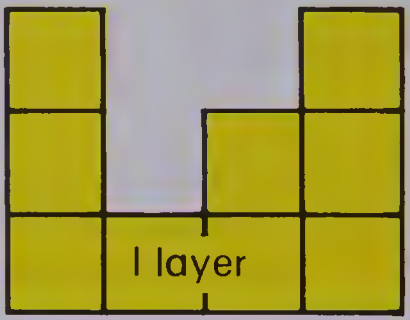

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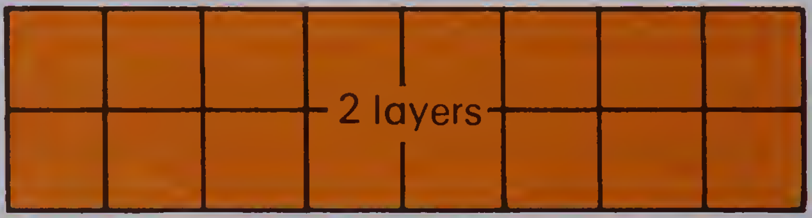

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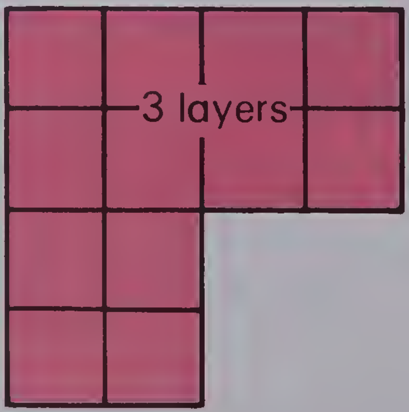

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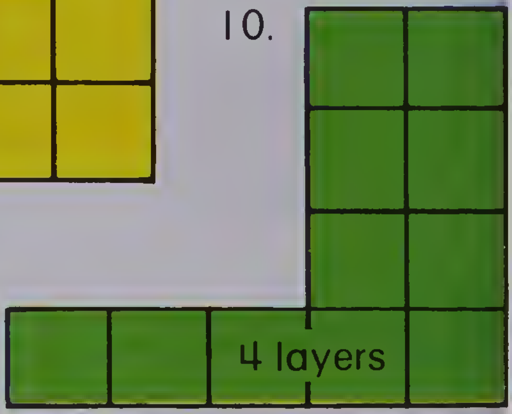
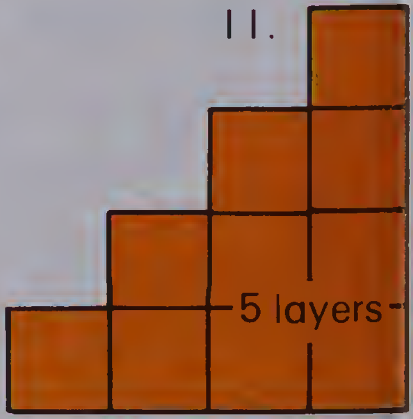
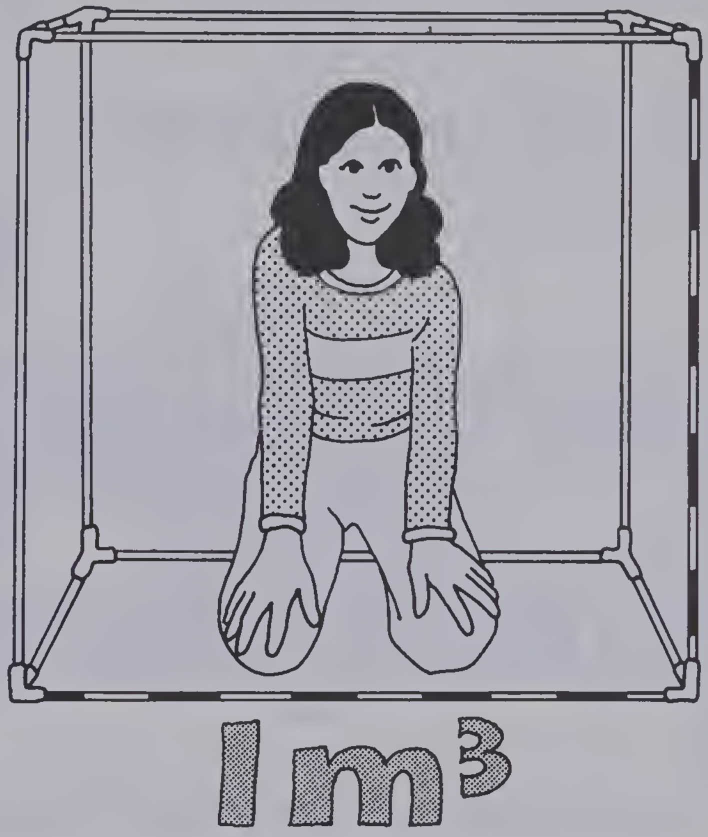


11.



In Action



1. Work with someone in your group.
Use paper marked into 1 cm squares.
Make a pattern like those on page 206.
Tell your partner how many layers to build.
He builds the model with 1 cm cubes.
Your partner tells the volume and makes the next pattern.

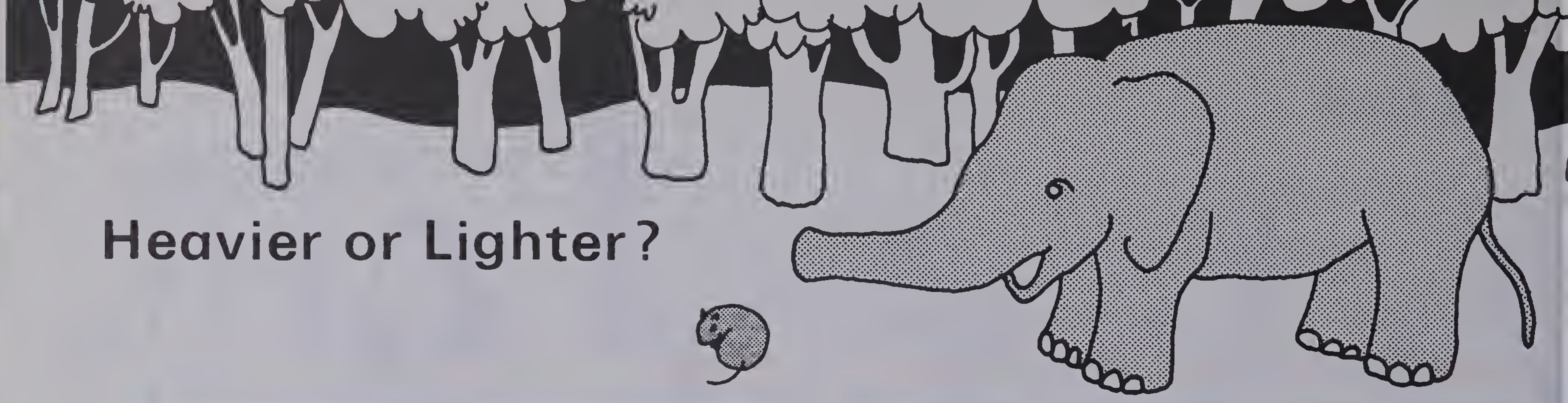
2. On paper marked into 1 cm squares, draw a pattern of 4 squares.
   - a) If you build 1 layer, what will the volume be?
   - b) If you build 2 layers, what will the volume be?
   - c) If you build 3 layers, what will the volume be?
   - d) If you build 4 layers, what will the volume be?

3. Can you find the volumes in Question 2 without building the models?

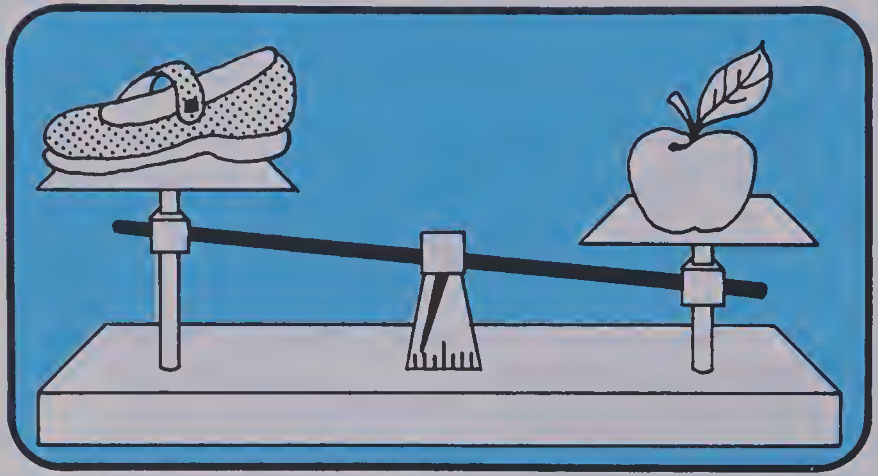
If I know the number of cubes in 1 layer
and the number of layers, I can find the volume!

4. Complete the chart in your notebook.

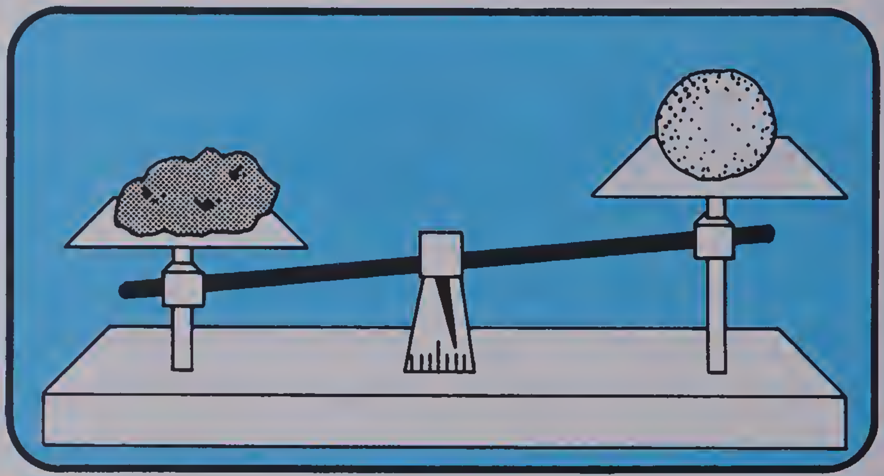
Number of Cubes in One Layer	Number of Layers	Total Number of Cubes (Volume)
4	3	
5	2	
5		15
6	2	
6	4	
7		7
7	3	
8		16
9		36



Heavier or Lighter?



Hold an apple in one hand and
a shoe in the other.
Which do you think is **heavier**?
Check your guess with a balance.



Hold a rock in one hand and
an orange in the other.
Which do you think is **lighter**?
Check your guess with a balance.

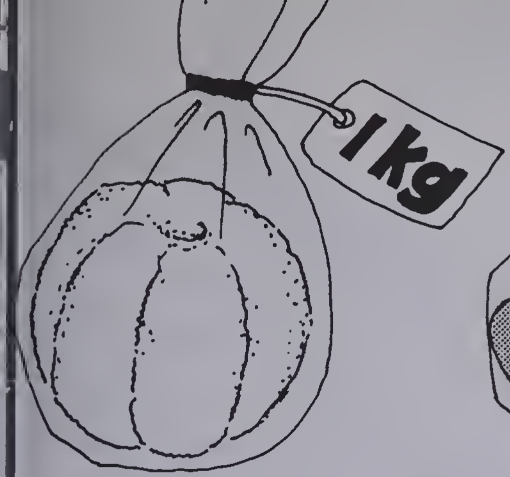
Pick 2 other objects. Which do you think is heavier, and which lighter? Check your guess.

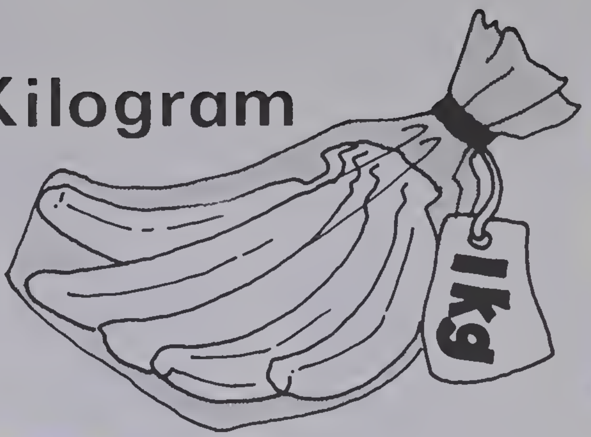
In Action

Work with a partner. Guess which object of each pair is heavier, and which is lighter. Check your guess with a balance. Complete the chart in your notebook.

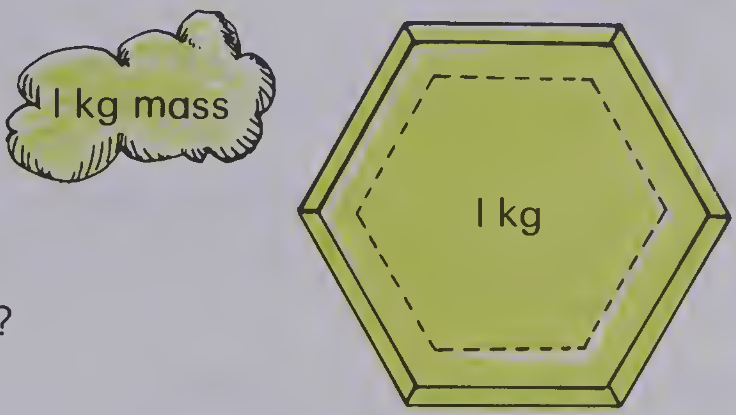
Object	Heavier (Guess)	Lighter (Guess)	Were you right?
bar of soap, baseball			
hockey puck, grapefruit			
box of crayons, box of chalk			
chalkboard brush, scissors			
this book, large ball of wool			
your notebook, milk glass			
eraser, pencil			

Explore the Kilogram





How heavy is a large grapefruit?
You can compare it to a kilogram.
Hold the 1 kg mass in one hand and the grapefruit in the other.
Is the grapefruit heavier or lighter than 1 kg?
Check your guess.



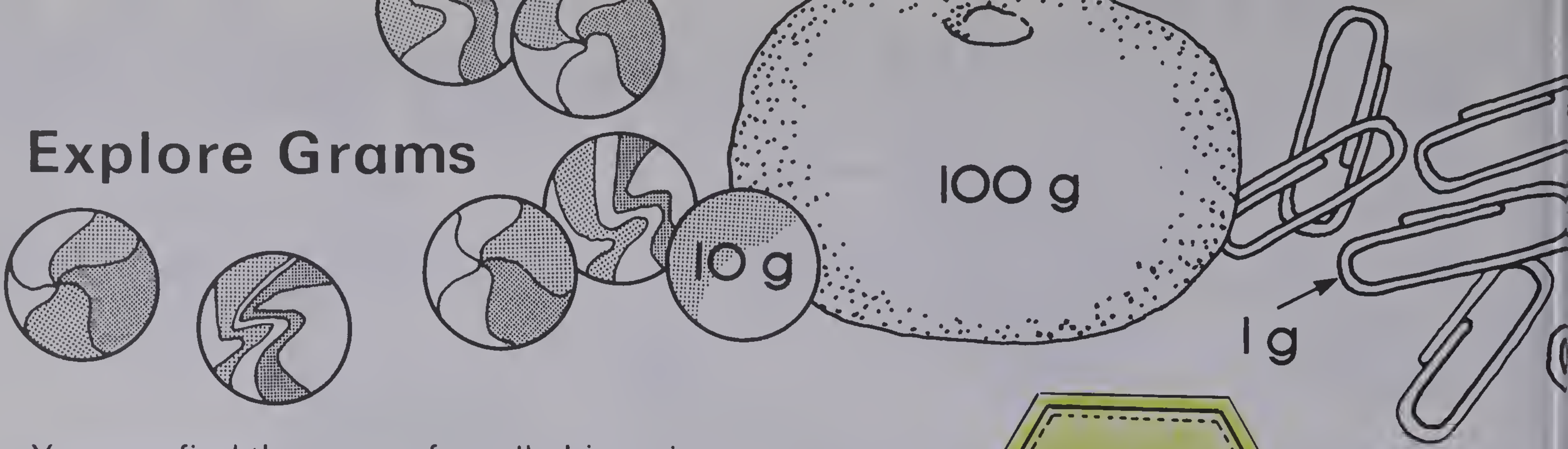
In Action

1. Work with a partner.
   Is each object heavier, lighter, or about the same as 1 kg?
   Check your guess with a balance. Complete the chart in your notebook.

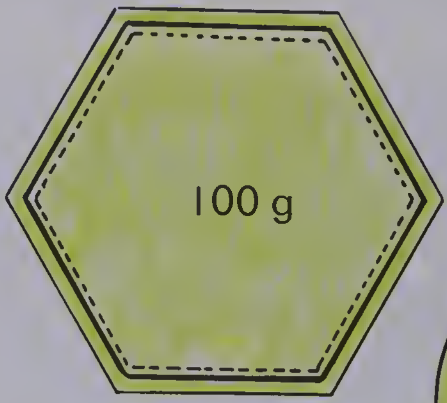
Object	Heavier than 1 kg	Lighter than 1 kg	Same as 1 kg	Were you right?
pair of shoes				
large rock				
pot of flowers				
jar of beans				
container of water				
large orange				
telephone book				
cabbage				
pail of sand				
can of fruit				
this textbook				

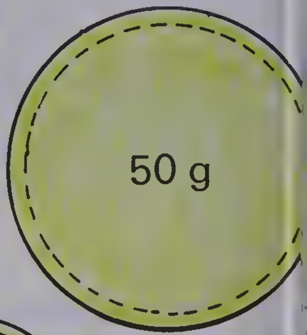
2. Make a collection of objects, each of which has a mass of about 1 kg.

Explore Grams



You can find the mass of small objects in grams.

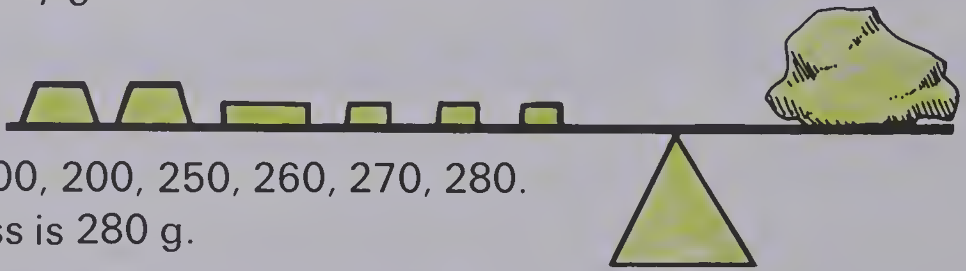


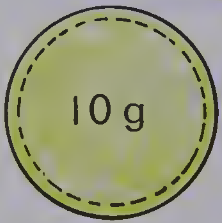


Put 4 boxes of crayons in one pan of the balance. How many 100 g, 50 g, and 10 g masses do you need to balance the boxes of crayons?

What is the mass of the 4 boxes of crayons?

How many grams?





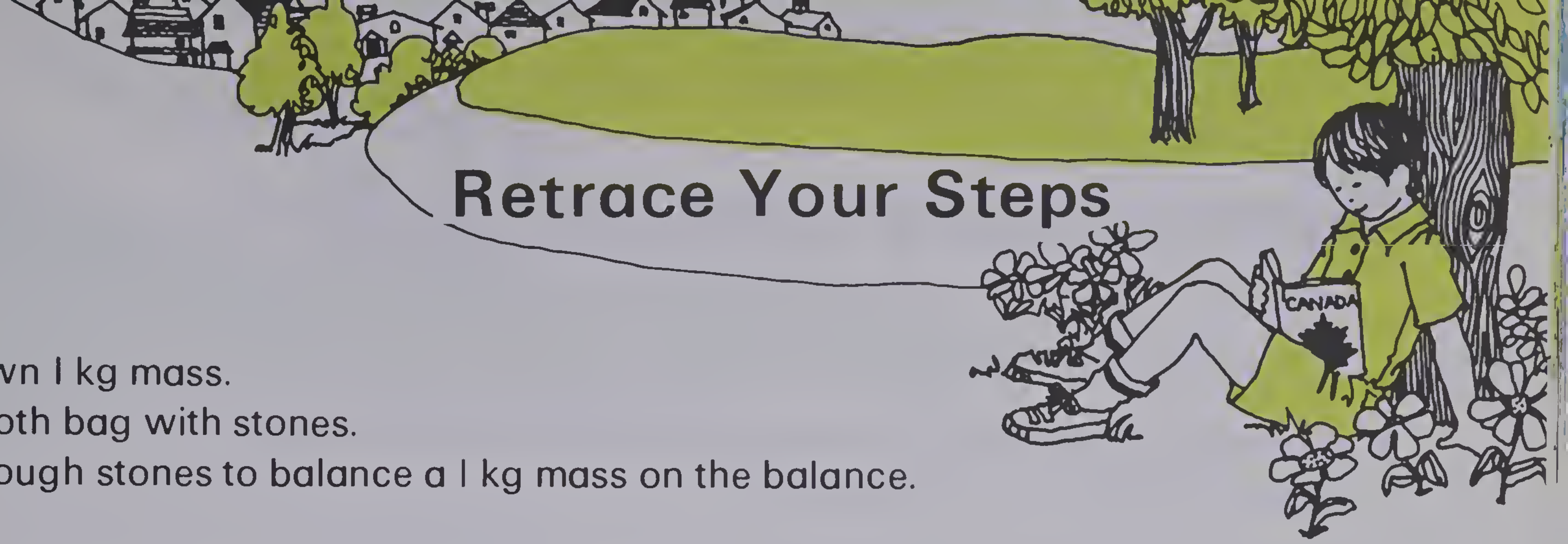
Count 100, 200, 250, 260, 270, 280.
The mass is 280 g.

In Action

1. Make a collection of objects, each of which has a mass of about 500 g.

2. Work with a partner.
Find the mass of each object. Use 100 g, 50 g, and 10 g masses and a balance.
Complete the chart in your notebook.

Object	How many 100 g masses?	How many 50 g masses?	How many 10 g masses?	Mass
pillow				
chocolate bar				
bar of soap				
10 raisins				
1 kg mass				



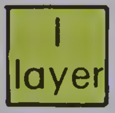
Retrace Your Steps

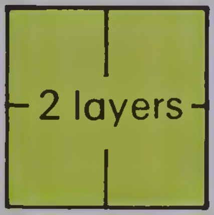
1. Make your own 1 kg mass.
   Fill a small cloth bag with stones.
   Put in just enough stones to balance a 1 kg mass on the balance.

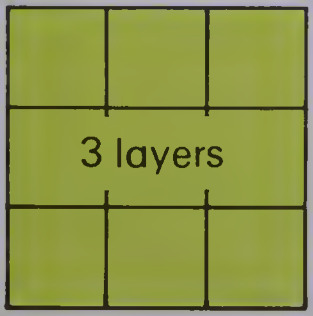
2. Work with a partner.
   Find the mass of each object.
   Use your own 1 kg masses and a balance.
   Guess the mass of the object first!
   Complete the chart in your notebook.

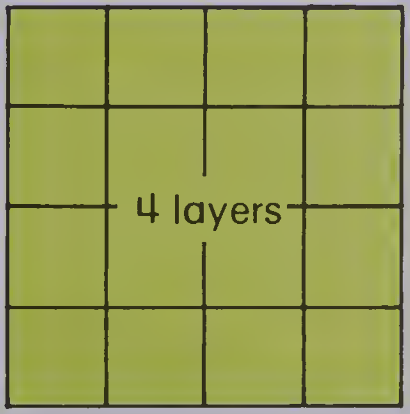
Object	Mass in kg (Guess)	Mass in kg (Measurement)
pair of shoes		
litre of water		
telephone book		
jar of nails		
pot of flowers		

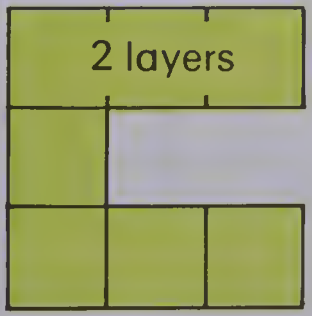
3. Find the volumes in cubic centimetres.
   Build the models with 1 cm cubes that fit together, if you need help.

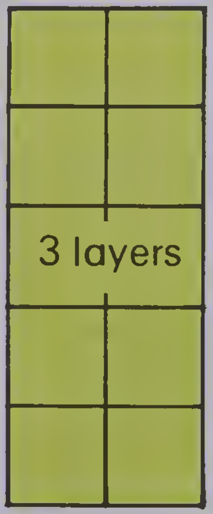
a)


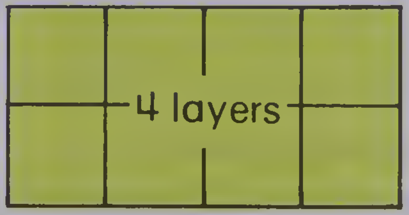
b)


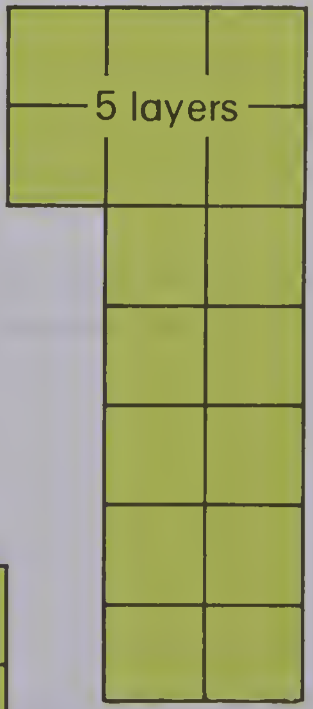
c)


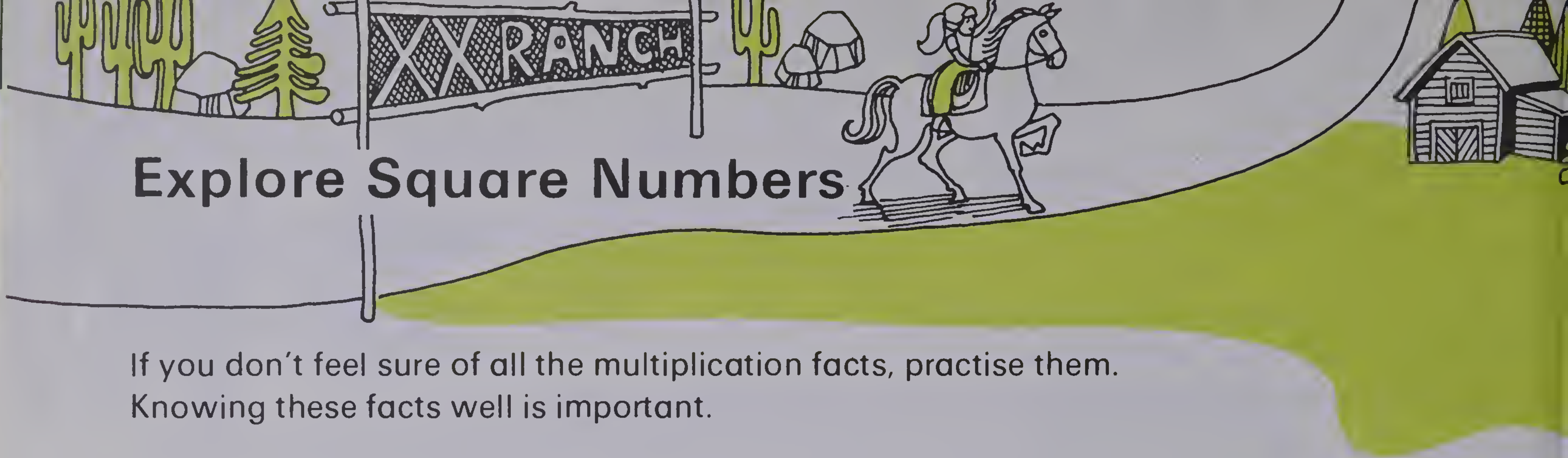
d)


e)


f)


g)


h)




Explore Square Numbers

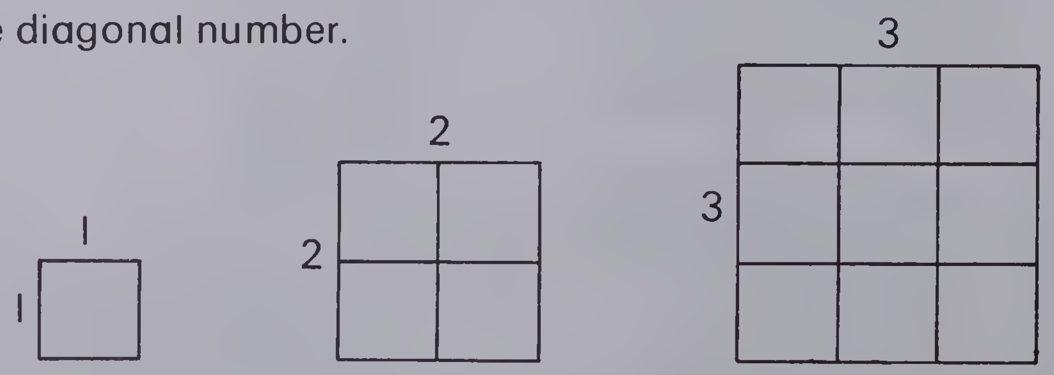
If you don't feel sure of all the multiplication facts, practise them.
Knowing these facts well is important.

Remember that 0 times any number is 0.
We can write that sentence this way: $0 \times k = 0$
For example, $0 \times 7 = 0$
It is also true that $k \times 0 = 0$
How do you read this sentence?
Write an example.

Multiplying by 1 is easy.
1 times any number is that same number.
Write the multiplication sentence using the letter k.
Did you write $1 \times k = k$?
For example, $1 \times 3 = 3$
It is also true that $k \times 1 = k$
Write an example.

Remember the facts for the **centre diagonal.**
$1 \times 1 = 1$
$2 \times 2 = 4$
$3 \times 3 = 9$
Complete the centre diagonal facts to 10×10.

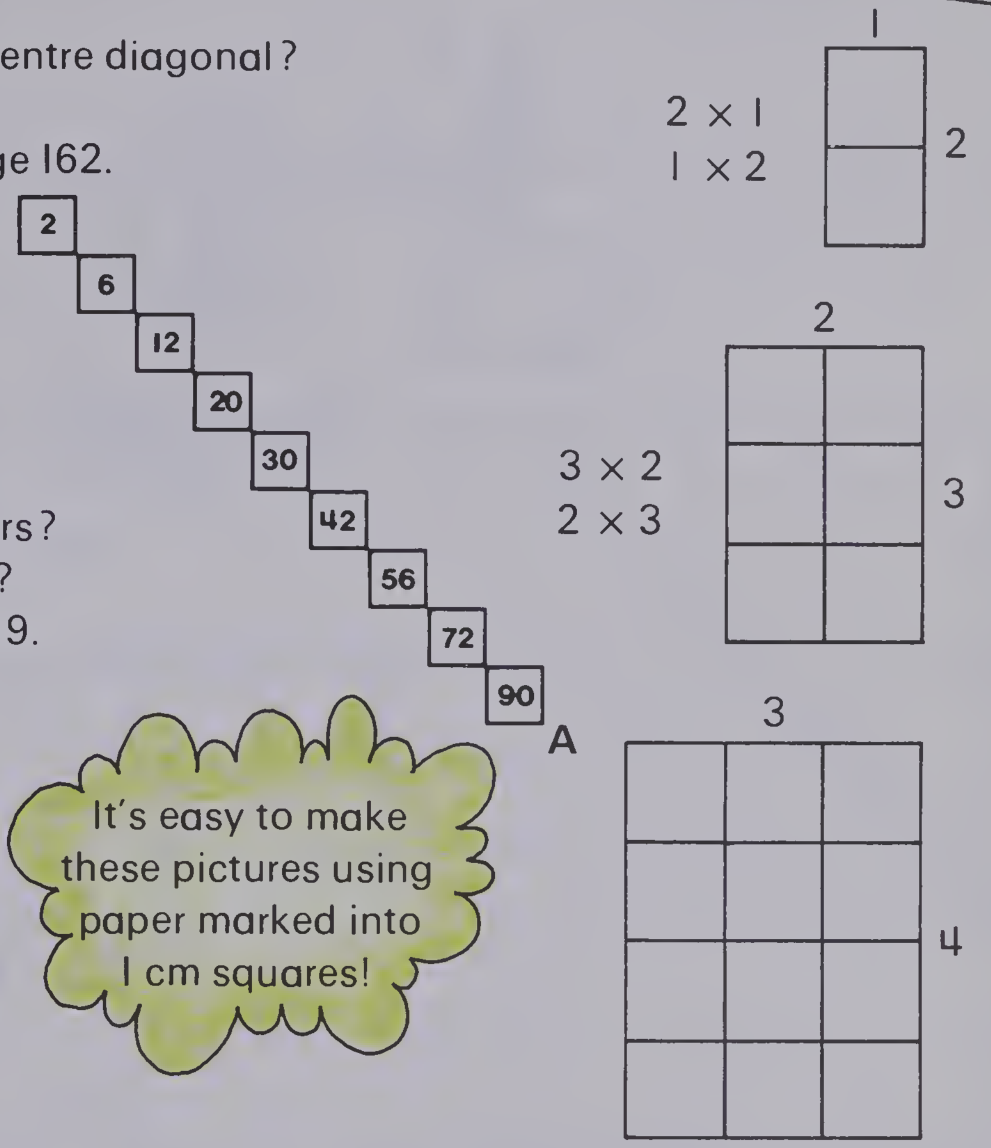
Draw pictures like these
for each centre diagonal number.



What shape are these pictures?
Does it make sense to call the centre diagonal numbers **square numbers**?

Explore Rectangular Numbers

Are you pleased with your work on the centre diagonal?
Now let's study the first diagonal.
Look at diagonal **A** in your chart on page 162.


2
6
12
20
30
42
56
72
90
A
It's easy to make these pictures using paper marked into 1 cm squares!
2 × 1
1 × 2
1
2
3 × 2
2 × 3
2
3
3
4

The pattern of facts starts like this.
2 × 1 = 2
3 × 2 = 6
4 × 3 = 12
Find the pattern in the first numbers.
What is the pattern in the second numbers?
Can you find the pattern in the products?
Complete the first diagonal facts to 10 × 9.

Pictures will help you learn the facts.
Draw pictures for the rest of the facts in the first diagonal.
What shape are your pictures?

In Action

1. Complete the multiplication patterns.

a)

Number Pair	Product
(1, 1)	1
(2, 2)	4
⋮	⋮
(10, 10)	?

b)

Number Pair	Product
(2, 1)	2
(3, 2)	6
⋮	⋮
(10, 9)	?

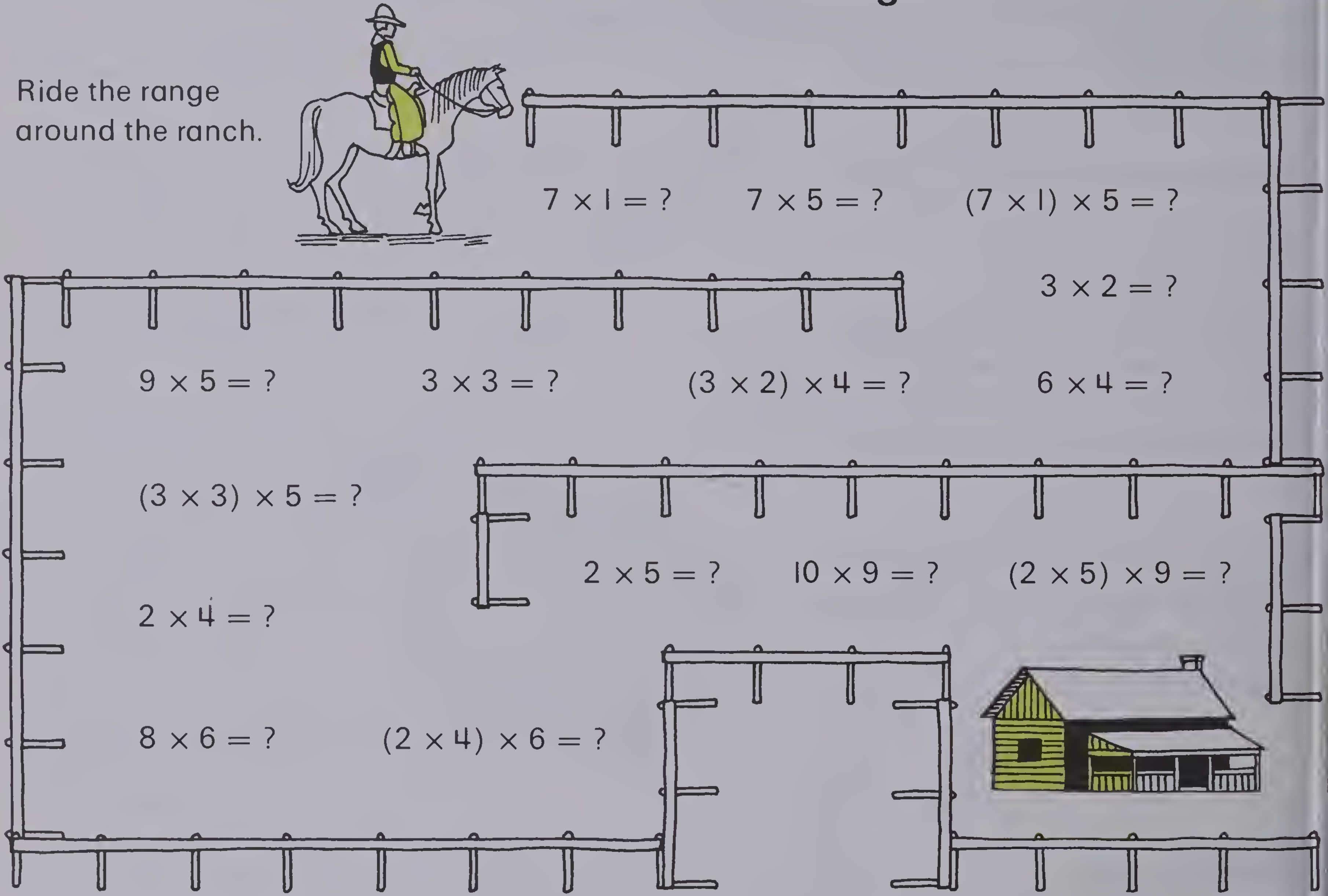
2. Mix up the number pairs in Question 1. Do you remember the products?

3. There were 7 groups of cattle grazing in the field. There were 8 cattle in each group. How many cattle were grazing in the field?

Byway

Range Trails

Ride the range
around the ranch.



$7 \times 1 = ?$ $7 \times 5 = ?$ $(7 \times 1) \times 5 = ?$

$3 \times 2 = ?$

$9 \times 5 = ?$ $3 \times 3 = ?$ $(3 \times 2) \times 4 = ?$ $6 \times 4 = ?$

$(3 \times 3) \times 5 = ?$

$2 \times 5 = ?$ $10 \times 9 = ?$ $(2 \times 5) \times 9 = ?$

$2 \times 4 = ?$

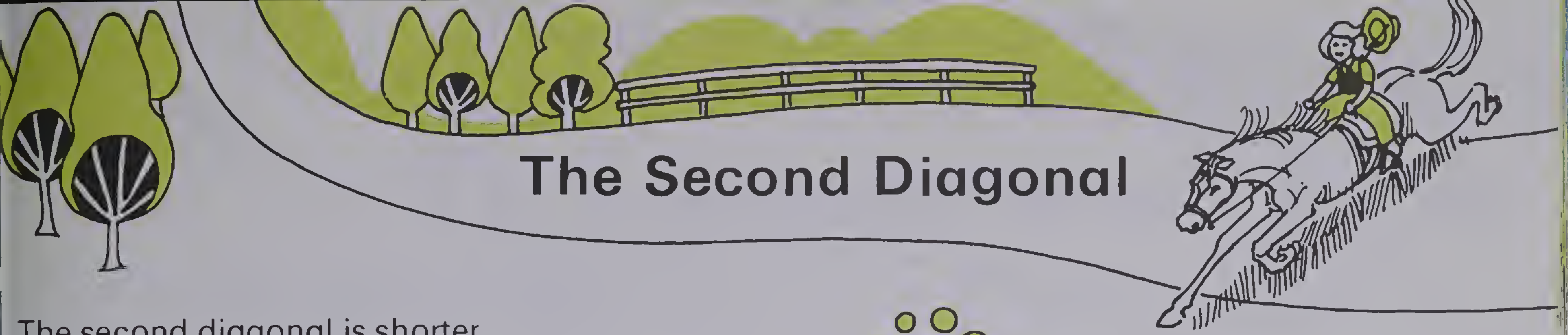
$8 \times 6 = ?$ $(2 \times 4) \times 6 = ?$

Draw 3

Play with someone in your group.
Make 3 sets of cards like these.
Shuffle the cards and place them face down in 3 piles.
Turn over a card from each pile.
Write a multiplication sentence.

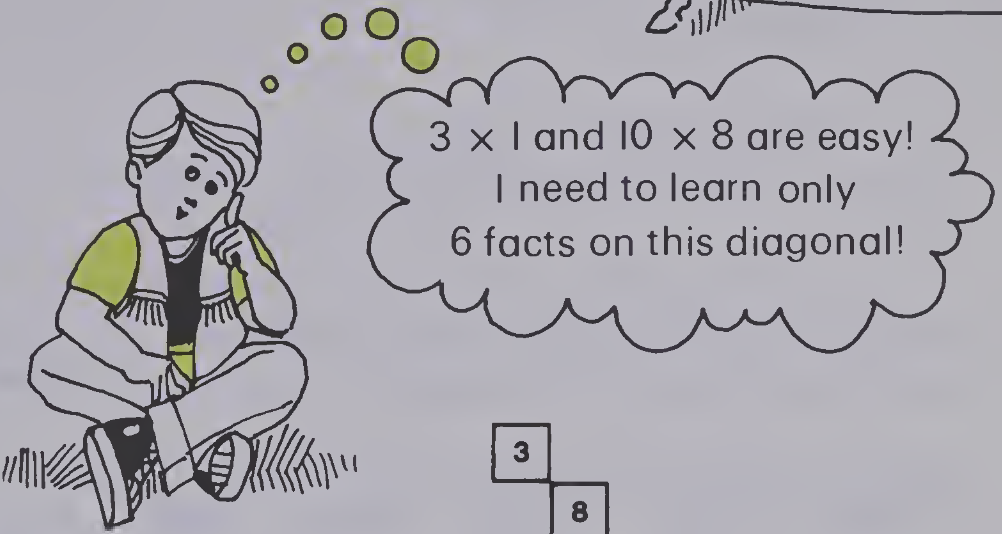
$(4 \times 2) \times 3 = 8 \times 3$
$= 24$

0	1	1
1	1	2
2	2	2
3	2	3
4	3	3



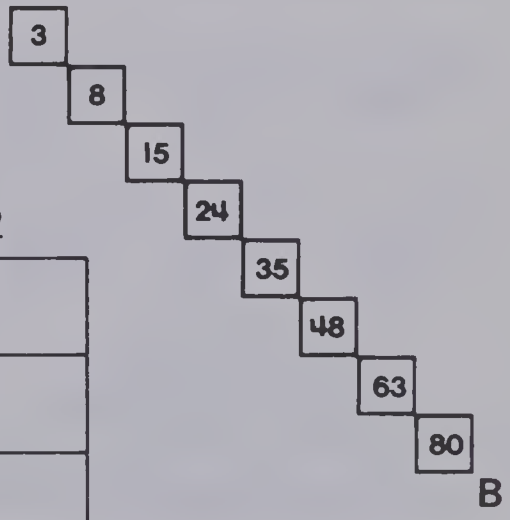
The Second Diagonal

The second diagonal is shorter.
Look at diagonal **B** on page 162.


3 × 1 and 10 × 8 are easy!
I need to learn only
6 facts on this diagonal!

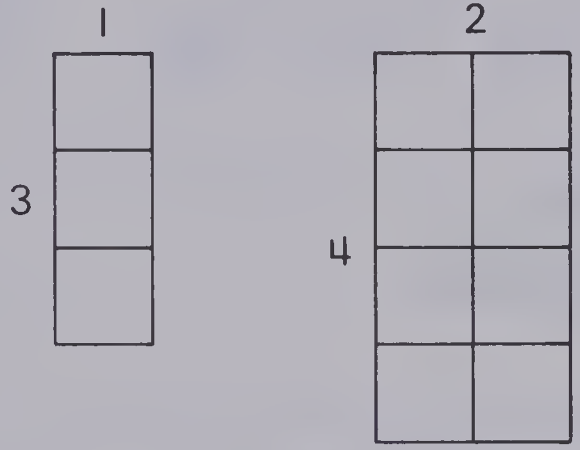
The pattern of facts starts like this.
3 × 1 = 3
4 × 2 = 8
5 × 3 = 15

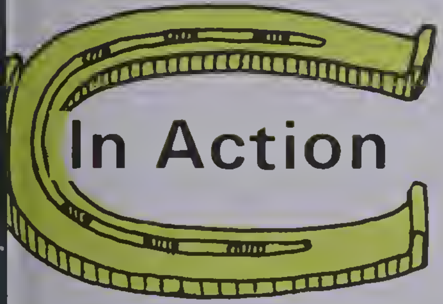
What is the pattern in the first numbers?
Find the pattern in the second numbers.
Can you find the pattern in the products?
Complete the second diagonal facts to 10 × 8.



Draw a picture for each fact.

What kind of figure is each picture?





In Action

1. Make a chart of number pairs for practising the multiplication facts in the second diagonal.

Number Pair	Product
(3, 1)	3
(4, 2)	8

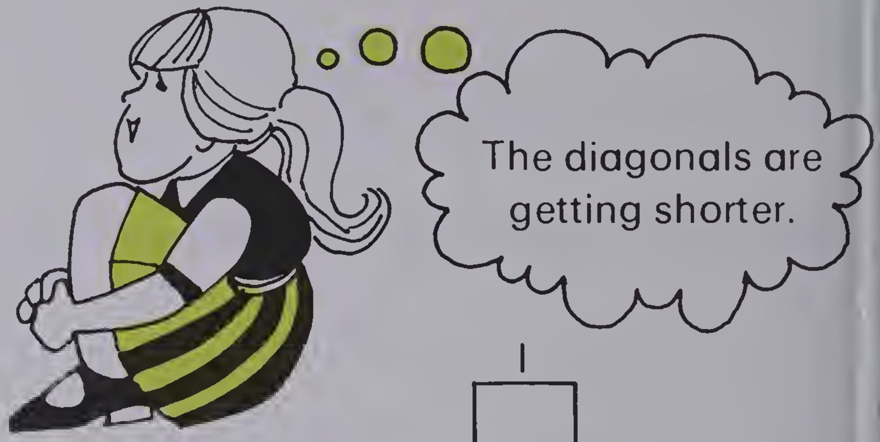
2. Write the number pairs from Question 1 in a different order.
Do you remember the products?
Practise the facts with a friend.

3. There were 8 events at the stampede.
6 different cowboys took part in each event.
How many cowboys took part?

4. 6 stagecoaches were entered in a race.
How many wheels did the stagecoaches have altogether?

5. The stampede events were held for 9 hours every day.
How many hours of events took place in a week?

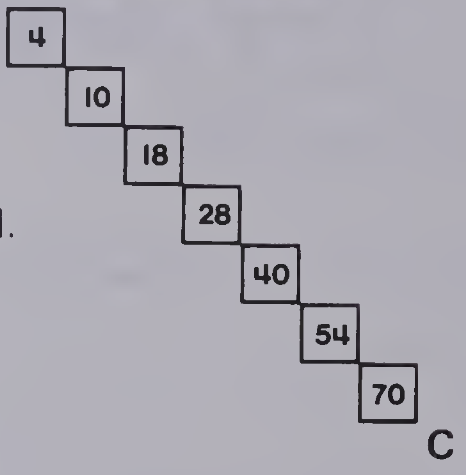
The Third Diagonal

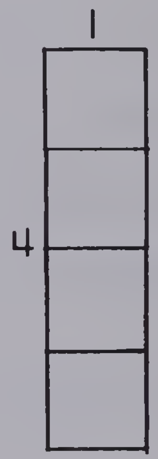

The diagonals are getting shorter.

Look at diagonal **C** on page 162.
The pattern of facts starts like this.
4 × 1 = 4
5 × 2 = 10
Complete the third diagonal facts to 10 × 7.
Find the patterns in the numbers.

Draw a picture for each fact.

By now, multiplying by 1 and by 10 is easy.
There are only 5 other facts in this diagonal.





In Action

1. Think the products.

a) (3, 1)
b) (10, 7)
c) (10, 10)
d) (2, 1)
e) (1, 1)
f) (10, 8)
g) (10, 9)
h) (4, 1)
i) (8, 5)
j) (9, 8)
k) (7, 4)
l) (8, 7)

2. Complete the chart for the third diagonal.

Number Pair	Product
(4, 1)	4
(5, 2)	?
⋮	⋮

3. Solve.

a) $k = 7 \times 4$
$k = ?$
b) $n = 8 \times 5$
$n = ?$
c) $a = 6 \times 3$
$a = ?$
d) $w = 9 \times 6$
$w = ?$
e) $y = 10 \times 7$
$y = ?$

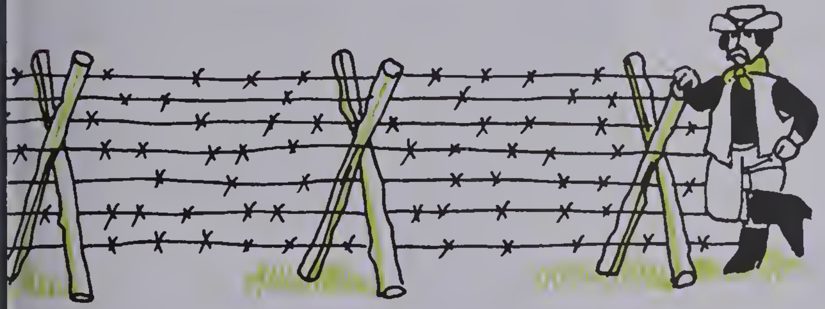
4. Each night, 6 new wagons entered the chuck wagon race. How many wagons entered the race in 3 nights?

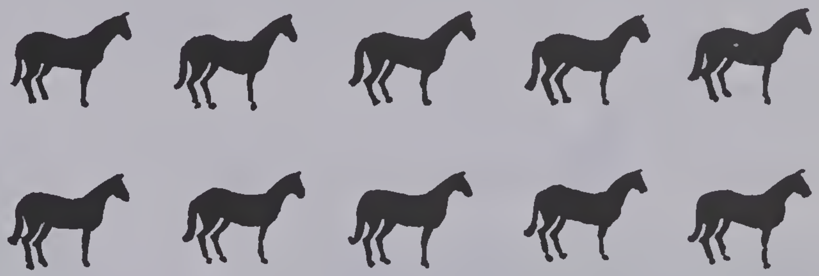
Cattle Ranching

1. 9 cowgirls were looking for stray cattle.
Each cowgirl brought 4 cattle back to the herd.
How many cattle did they find?

2. 9 cowboys were mending a fence.
Each cowboy fixed 7 parts
of the fence.
How many parts of the fence did
all the cowboys mend?

3. Each cowboy looks after
a string of horses.
There are 10 horses in a string.
How many horses do 10 cowboys
look after?

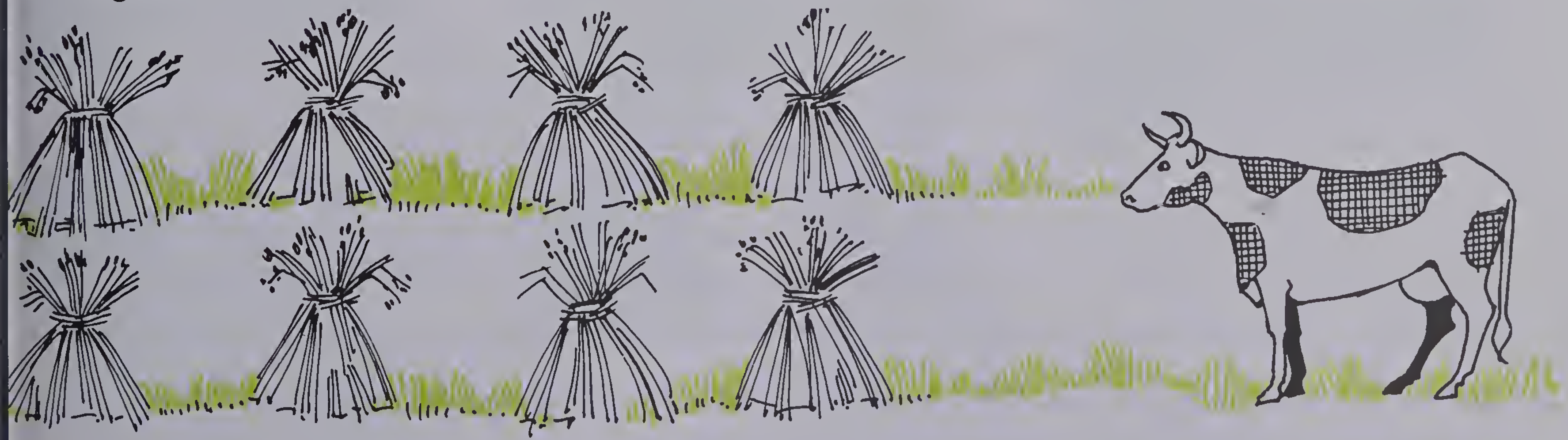




4. At spring round-up time, cowboys drive the cattle to the corral.
The cattle drive takes 8 days.
They drive 5 km each day.
How far do the ranchers drive the cattle?

5. On Saturday night, 6 cowgirls
went to the rodeo.
Each cowgirl won 3 prizes.
How many prizes did they win
altogether?

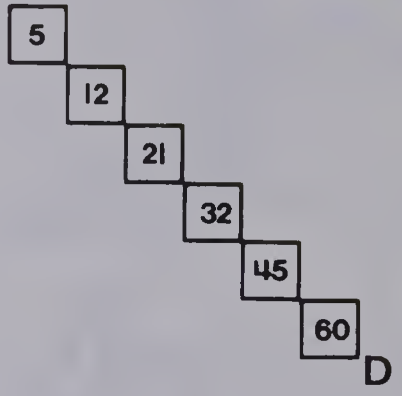
6. During the winter, 9 cowboys each
fed the cattle 8 haystacks.
How many haystacks did the
cowboys use?



7. Create a story problem about 7 × 5.

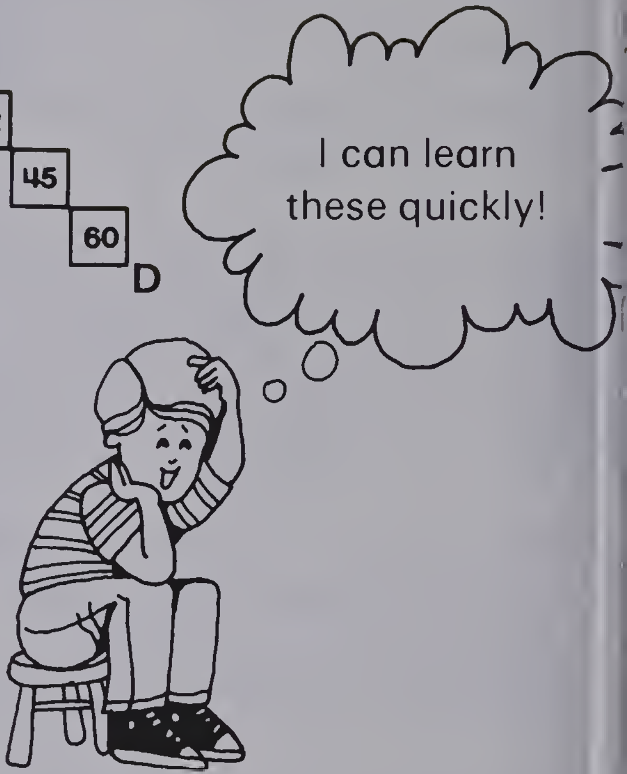
The Other Diagonals

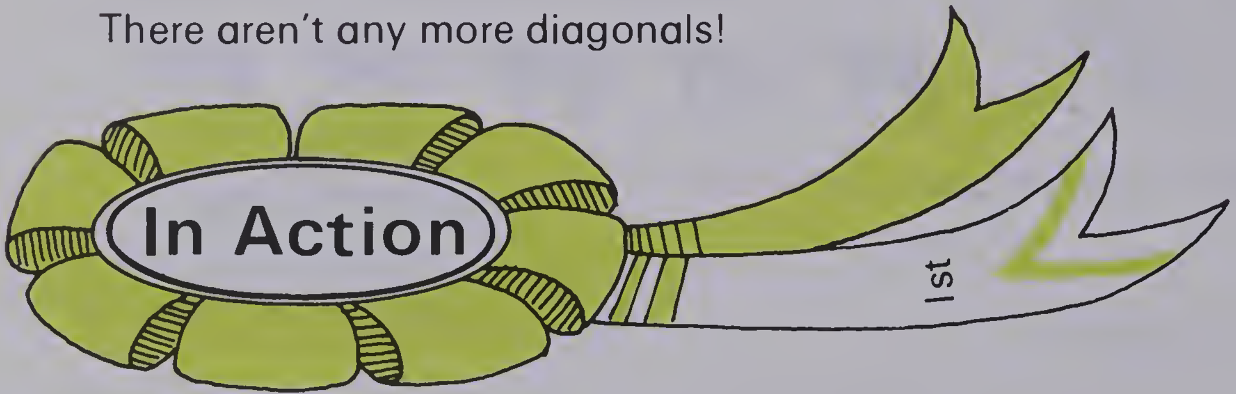
Diagonal **D** starts with 5 × 1 and ends with 10 × 6.
There are only 4 other facts in-between.
Complete the pattern of multiplication facts.



Make patterns for the rest of the diagonals.
Diagonal **E**: 6 × 1 = 6 to 10 × 5 = 50
Diagonal **F**: 7 × 1 = 7 to 10 × 4 = 40
Diagonal **G**: 8 × 1 = 8 to 10 × 3 = 30
Diagonal **H**: 9 × 1 = 9 and 10 × 2 = 20
Diagonal **I**: 10 × 1 = 10

There aren't any more diagonals!


I can learn these quickly!



In Action

1. Complete the multiplication charts in your notebook.

a)

Number Pair	Product
(5, 1)	5
(6, 2)	?
⋮	⋮
(10, 6)	?

b)

Number Pair	Product
(6, 1)	?
(7, 2)	?
⋮	⋮
(10, 5)	?

c)

Number Pair	Product
(7, 1)	7
⋮	⋮
(10, 4)	?

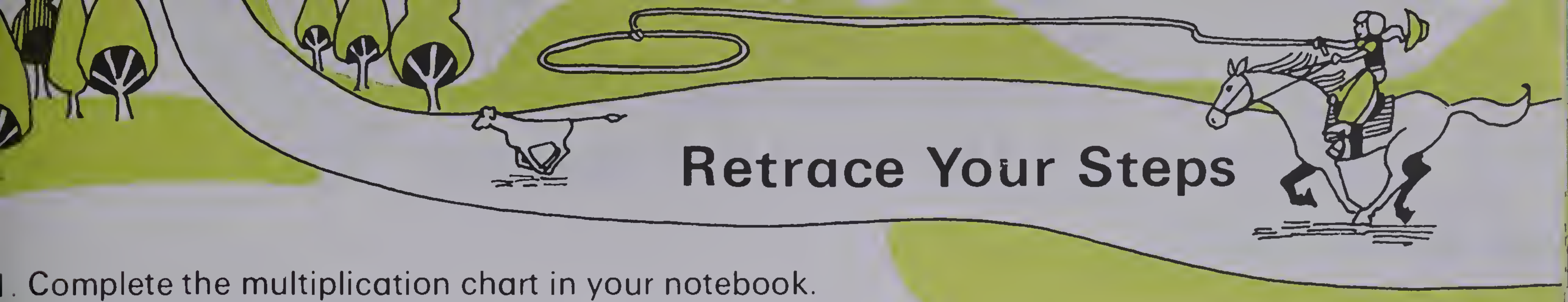
d)

Number Pair	Product
(8, 1)	?
?	?
(10, 3)	?

e)

Number Pair	Product
(9, 1)	?
(10, 2)	?

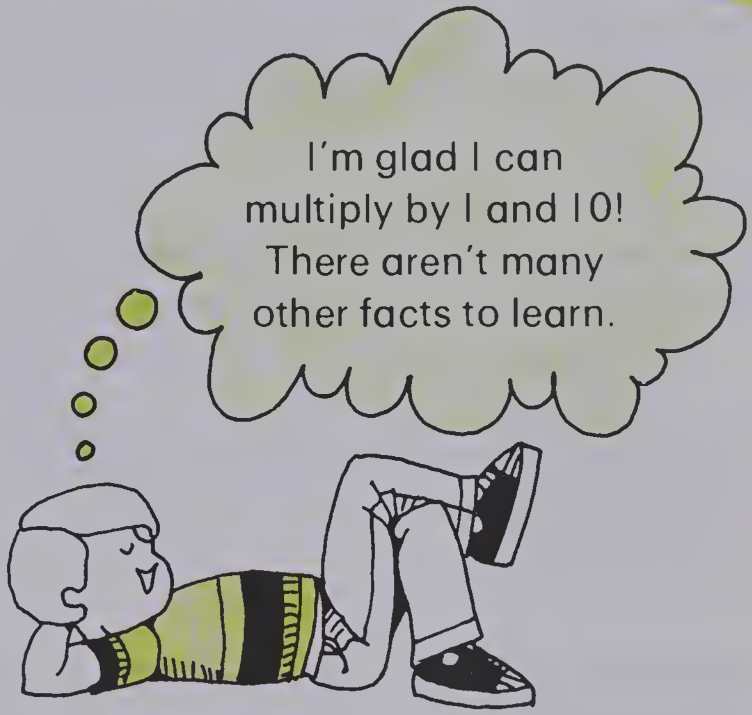
2. Use 2 wooden cubes for dice. Write the numerals 5 to 10 on the faces of one die.
Write the numerals 3 to 8 on the faces of the other die.
Roll the dice and write 2 multiplication facts.



Retrace Your Steps

1. Complete the multiplication chart in your notebook.

×	2	3	4	5	6	7	8	9
2								
3								
4								
5								
6								
7								
8								
9								


I'm glad I can multiply by 1 and 10! There aren't many other facts to learn.

2. Now let's change the order of the numerals!

a) 4 × 9 = ?
b) 3 × 6 = ?
c) 2 × 8 = ?

d) 6 × 7 = ?
e) 4 × 8 = ?
f) 3 × 4 = ?

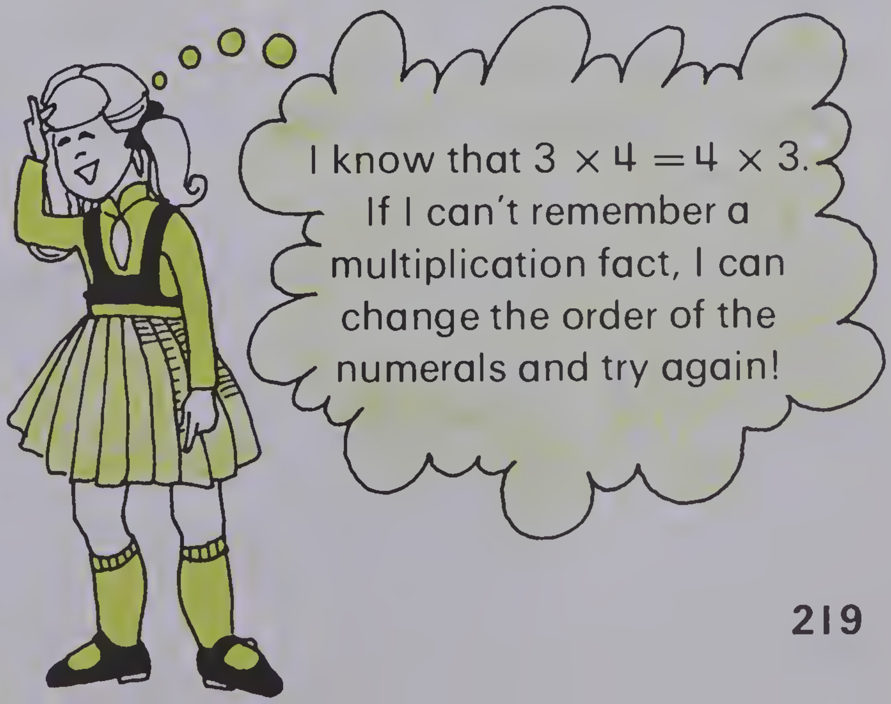
g) 2 × 6 = ?
h) 6 × 9 = ?
i) 3 × 7 = ?

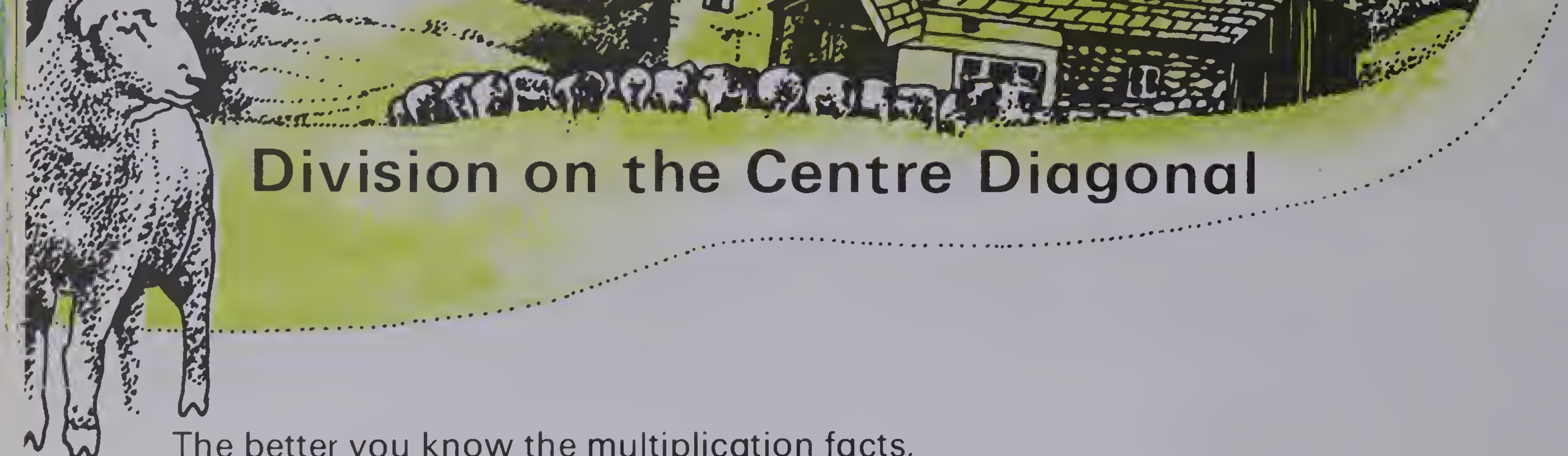
j) 6 × 8 = ?
k) 2 × 3 = ?
l) 7 × 9 = ?

m) 3 × 9 = ?
n) 8 × 9 = ?
o) 5 × 8 = ?

3. Complete the upper half of the multiplication chart in your notebook.

×	2	3	4	5	6	7	8	9
2								
3								
4								
5								
6								
7								
8								
9								


I know that 3 × 4 = 4 × 3. If I can't remember a multiplication fact, I can change the order of the numerals and try again!

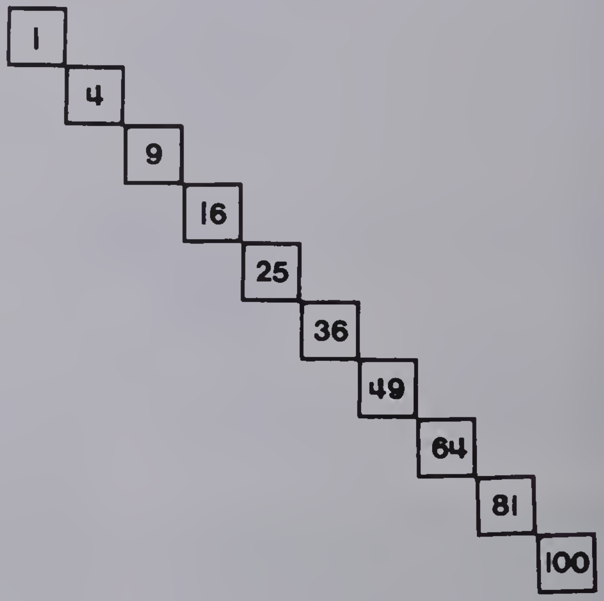


Division on the Centre Diagonal

The better you know the multiplication facts,
the more easily you can learn the division facts.

Dividing by 1 is easy.
Any number divided by 1 gives the same number.
We can write that sentence this way, $n \div 1 = n$
For example, $5 \div 1 = 5$

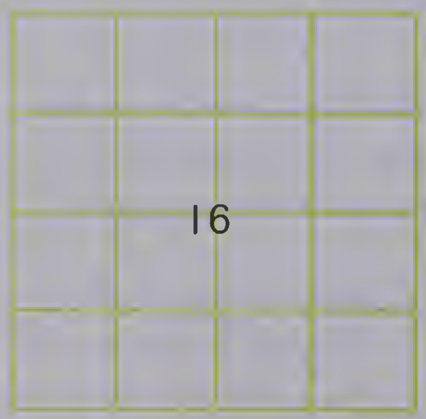
Remember the facts for the centre diagonal.
$1 \div 1 = 1$
$4 \div 2 = 2$
$9 \div 3 = 3$
Complete the centre diagonal facts to $100 \div 10$.



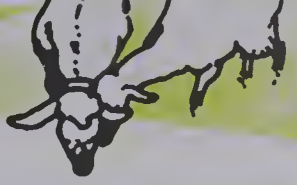
Make a chart of division number pairs.

Number Pair	Answer
(1, 1)	1
(4, 2)	2
(9, 3)	?
⋮	⋮

Find the patterns in the numbers.
Is there an easy way to remember the centre diagonal facts?



Think about the pictures you drew for page 212.
What is a square number?



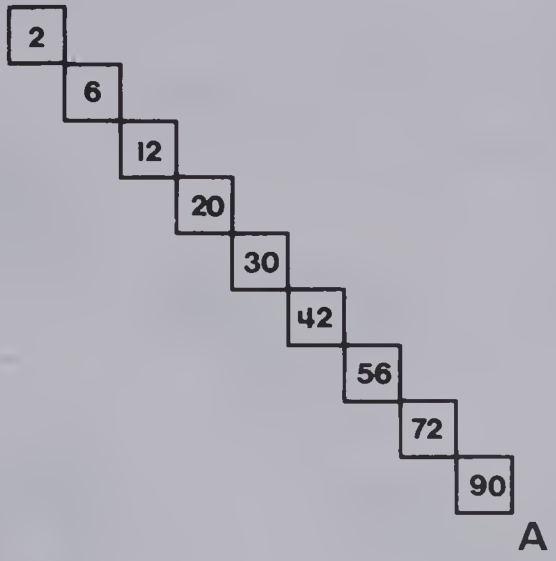
Explore Pairs of Division Facts

Let's study the first diagonal.
The pattern of multiplication facts starts like this.

$2 \times 1 = 2$

$3 \times 2 = 6$

What are the division facts?



For each multiplication fact, there are 2 division facts.

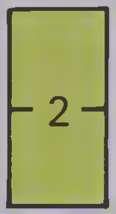
$$2 \times 1 = 2 \left\{ \begin{array}{l} 2 \div 1 = 2 \\ 2 \div 2 = 1 \end{array} \right.$$

$$3 \times 2 = 6 \left\{ \begin{array}{l} 6 \div 2 = 3 \\ 6 \div 3 = 2 \end{array} \right.$$

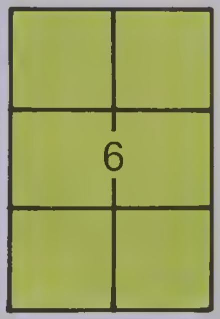
Find the patterns in the numbers.
Complete the division facts for the first diagonal.

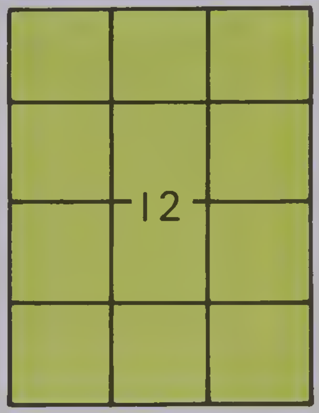
Pictures will help you learn the pairs of division facts.

$2 \div 1$
$2 \div 2$



$6 \div 2$
$6 \div 3$





In Action

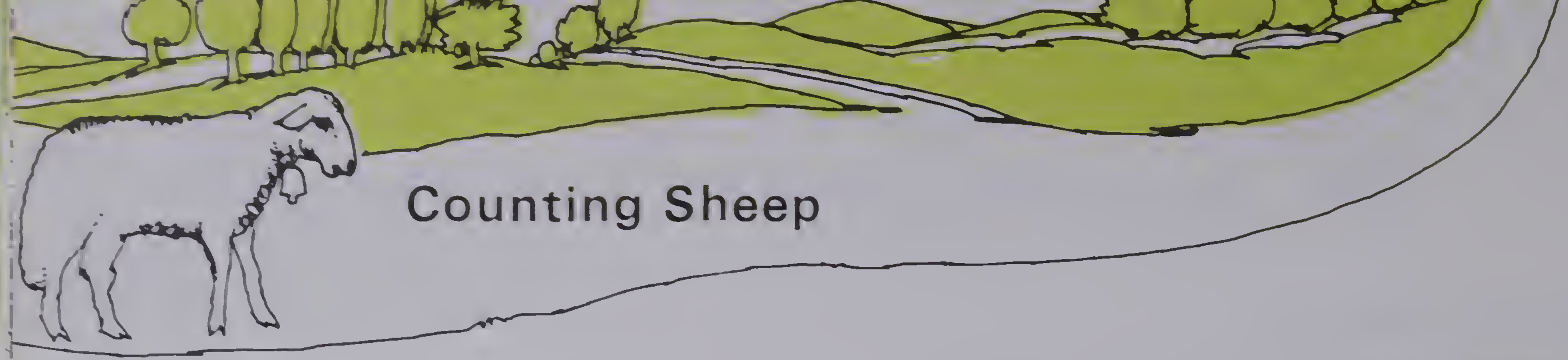
You can make 2 charts of division number pairs for this diagonal.
Complete the charts.

1.

Number Pair	Answer
(2, 1)	2
(6, 2)	3
(12, 3)	?
⋮	⋮

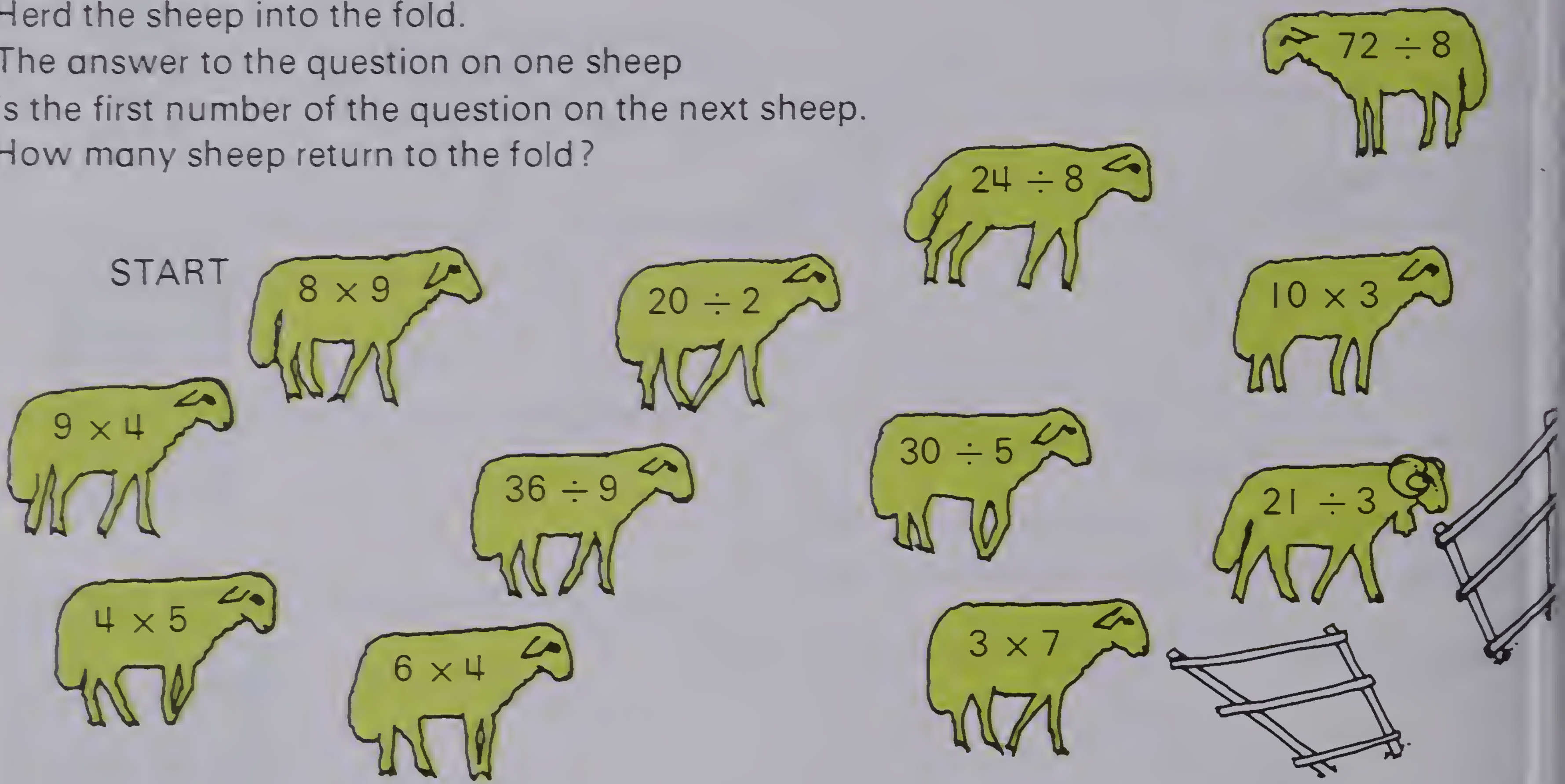
2.

Number Pair	Answer
(2, 2)	1
(6, 3)	?
(12, 4)	?
⋮	⋮



Counting Sheep

Herd the sheep into the fold.
The answer to the question on one sheep
is the first number of the question on the next sheep.
How many sheep return to the fold?

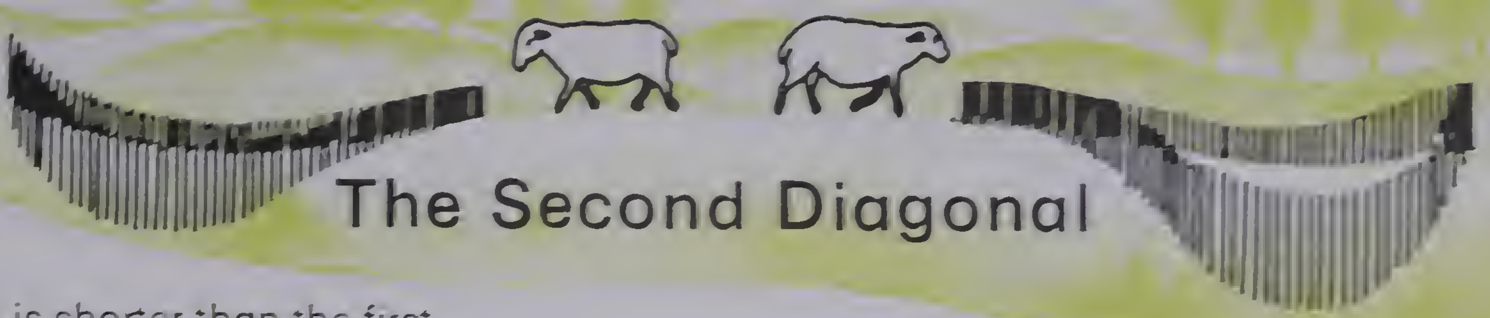


How's Your Math Sense?

Complete the sentences in your notebook.
The answers are all in the chart—somewhere.

1. $\frac{3}{10} = ?$
2. 27.3 = ?
3. 3.46 means?
4. (20 − 5) − 12 = ?
5. 15 > ?
6. 11 < ?
7. 1 green disc = 10?
8. 10 red discs = 1 ?
9. 9 × 5 = ?
10. 42 ÷ 7 = ?
11. Water freezes at?
12. Area is measured in?
13. Volume is measured in?
14. A kite is a?
15. An isosceles triangle has?

square units	2 equal sides	cubic units	3, 4 tenths, and 6 hundredths			
blue disc	6 + 9	yellow discs	13			
20 + 7 + 0.3	0°C	45	3	6	0.3	quadrilateral

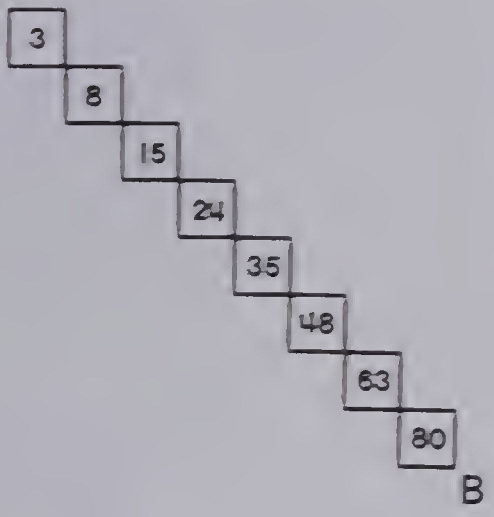


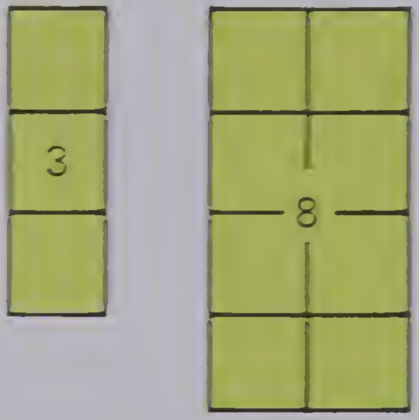
The Second Diagonal

The second diagonal is shorter than the first.
The patterns of division facts start like this.

3 ÷ 1 = 3
3 ÷ 3 = 1

8 ÷ 2 = 4
8 ÷ 4 = 2





Can you find the patterns?
Complete the division facts
for the second diagonal.

In Action

1. You can make 4 number pair charts for the second diagonal.

Multiply.

Number Pair	Product
(1, 3)	?
(2, 4)	8
(3, 5)	?
⋮	⋮

Multiply.

Number Pair	Product
(3, 1)	?
(4, 2)	?
(5, 3)	?
⋮	⋮

Divide.

Number Pair	Answer
(3, 1)	3
(8, 2)	4
(15, 3)	?
⋮	⋮

Divide.

Number Pair	Answer
(3, 3)	1
(8, 4)	?
(15, 5)	?
⋮	⋮

If I think of 3 numbers
like 2, 4, and 8,
I can write 4 facts!

2 × 4 = 8
4 × 2 = 8

8 ÷ 4 = 2
8 ÷ 2 = 4

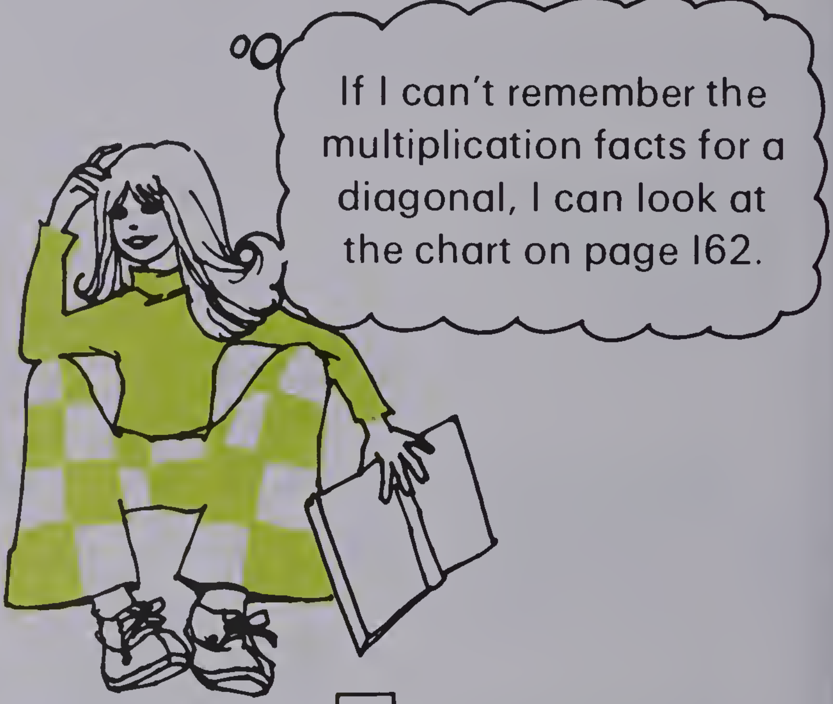
2. Work with a partner. Pick a fact in the first or second diagonal. Write the 3 numerals. Your partner writes 2 multiplication and 2 division facts.

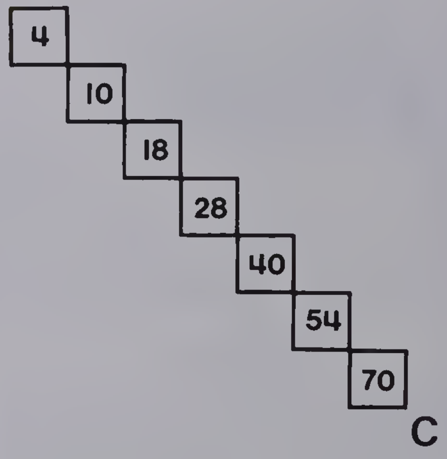
The Third Diagonal

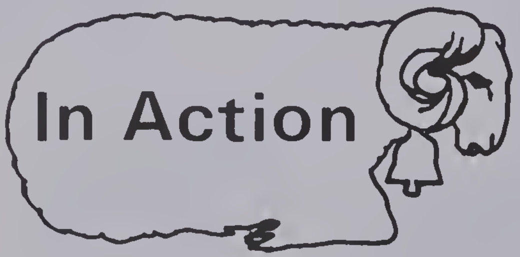
The third diagonal division facts start like this.

$4 \div 1 = 4$
$4 \div 4 = 1$
$10 \div 2 = 5$
$10 \div 5 = 2$

Complete the third diagonal division facts.
Look for patterns in the numbers.


If I can't remember the multiplication facts for a diagonal, I can look at the chart on page 162.


4
10
18
28
40
54
70
C



In Action

1. Complete the charts of division number pairs in your notebook.

Number Pair	Answer
(4, 1)	4
(10, 2)	?
⋮	⋮

Number Pair	Answer
(4, 4)	?
(10, 5)	?
⋮	⋮

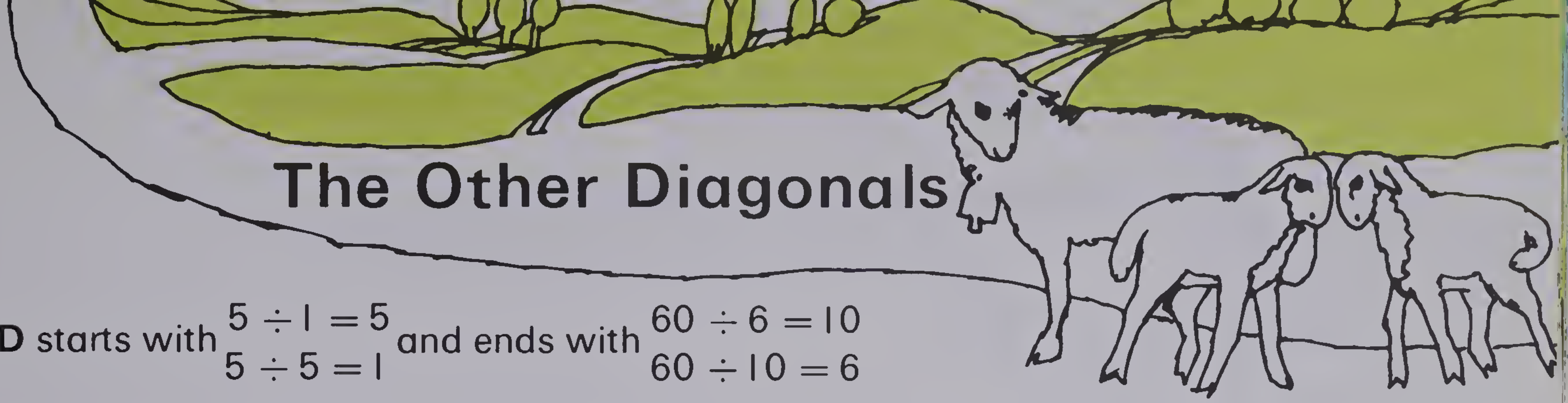
2. Divide.
Think the answers.

a) (90, 10)
b) (54, 9)
c) (40, 5)
d) (72, 8)
e) (63, 7)
f) (54, 6)
g) (64, 8)
h) (40, 8)
i) (28, 7)
j) (80, 8)
k) (28, 4)
l) (18, 3)

3. Solve.

a) $k = 42 \div 6$
$k = ?$
b) $n = 35 \div 5$
$n = ?$
c) $w = 48 \div 6$
$w = ?$
d) $y = 24 \div 4$
$y = ?$

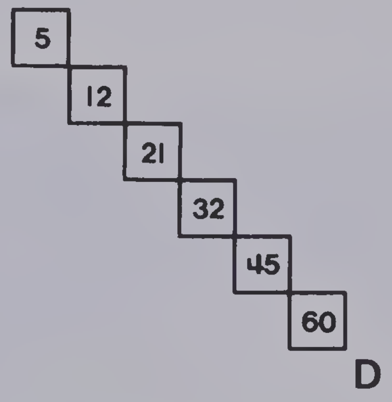
4. The shearer sheared 28 sheep.
The fleece from 4 sheep filled 1 bag.
How many bags of fleece did he get?



The Other Diagonals

Diagonal **D** starts with $\begin{matrix} 5 \div 1 = 5 \\ 5 \div 5 = 1 \end{matrix}$ and ends with $\begin{matrix} 60 \div 6 = 10 \\ 60 \div 10 = 6 \end{matrix}$

There are only 4 other pairs of facts on this diagonal.
Complete the patterns of division facts.



Make patterns for diagonals **E**, **F**, **G**, **H**, and **I**.
Look at the chart on page 162 if you need help.

In Action

1. Complete the division charts in your notebook.

a)

Number Pair	Answer
(5, 1)	5
(12, 2)	?
⋮	⋮
(60, 6)	10

b)

Number Pair	Answer
(6, 6)	1
(14, 7)	?
⋮	⋮
(50, 10)	?

c)

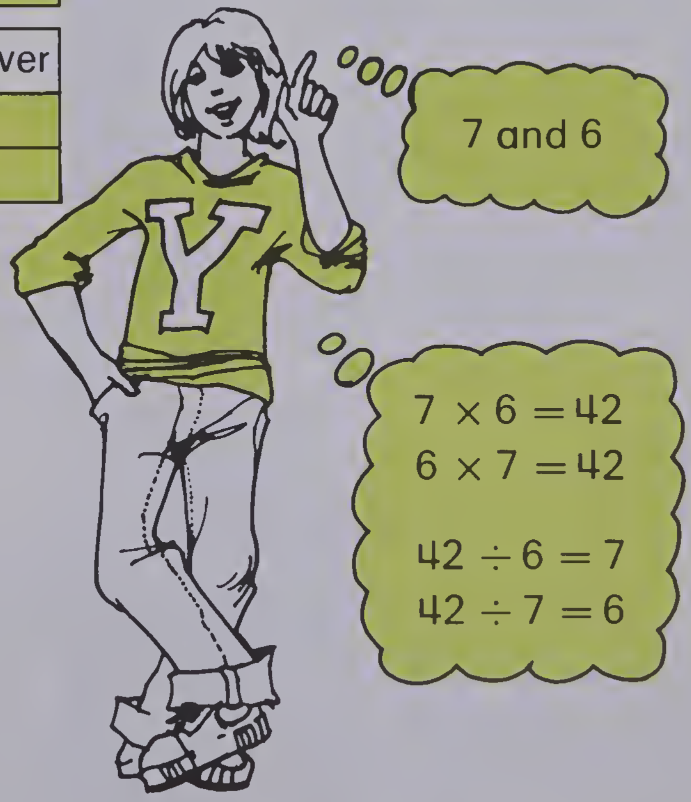
Number Pair	Answer
(7, 1)	?
⋮	⋮
(40, 4)	?

d)

Number Pair	Answer
(8, 8)	?
⋮	⋮
(30, 10)	?

e)

Number Pair	Answer
(9, 1)	?
(20, 2)	?



2. Mix up the order of the number pairs in Question 1.
   Do you remember the answers?

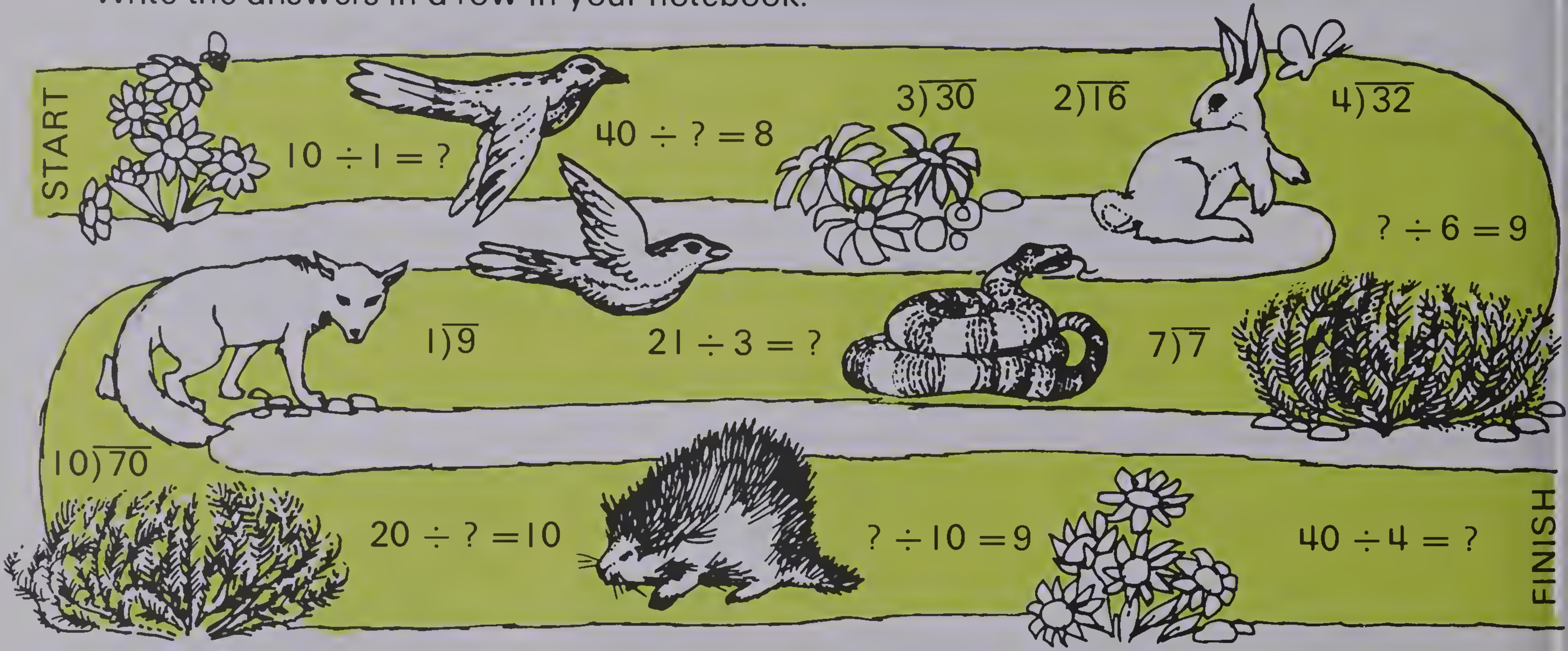
3. Work with a friend. Pick a number from each chart.
   Your friend writes 4 multiplication and division facts.
   Your friend picks the next numbers.

1	🟩	5	🟩	9
🟩	3	🟩	7	🟩

🟩	4	🟩	8	🟩
2	🟩	6	🟩	10

Retrace Your Steps

1. Follow the pathway.
   Write the answers in a row in your notebook.


START
10 ÷ 1 = ?
40 ÷ ? = 8
$3\overline{)30}$
$2\overline{)16}$
$4\overline{)32}$
? ÷ 6 = 9
$7\overline{)7}$
21 ÷ 3 = ?
$1\overline{)9}$
$10\overline{)70}$
20 ÷ ? = 10
? ÷ 10 = 9
40 ÷ 4 = ?
FINISH

2. Solve.

a) $k = 80 \div 10$
$k = ?$

b) $n = 63 \div 9$
$n = ?$

c) $p = 60 \div 6$
$p = ?$

d) $w = 56 \div 7$
$w = ?$

e) $g = 81 \div 9$
$g = ?$

f) $c = 48 \div 8$
$c = ?$

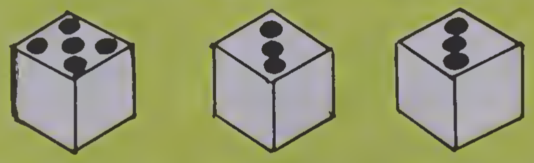
g) $y = 8 \div 8$
$y = ?$

h) $m = 100 \div 10$
$m = ?$

3. Divide. Think the answers.

a) (6, 1)
b) (49, 7)
c) (56, 8)
d) (14, 2)
e) (21, 3)
f) (72, 9)
g) (60, 10)
h) (28, 4)
i) (50, 5)
j) (54, 9)
k) (64, 8)
l) (6, 6)

4. Roll 3 ordinary dice.
   Use the numbers to write multiplication and division sentences.



$(5 \times 3) \div 3 = 15 \div 3$
$= 5$

$(3 \times 3) \times 5 = 9 \times 5$
$= 45$

Sheep Ranching

1. Ewes and lambs are put in separate pens at shearing time.
   There are 14 sheep altogether.
   Each ewe has a lamb.
   How many sheep are in each pen?

2. There are 45 rails in the fence on one side of a pen.
   There are 5 rails in each part of the fence.

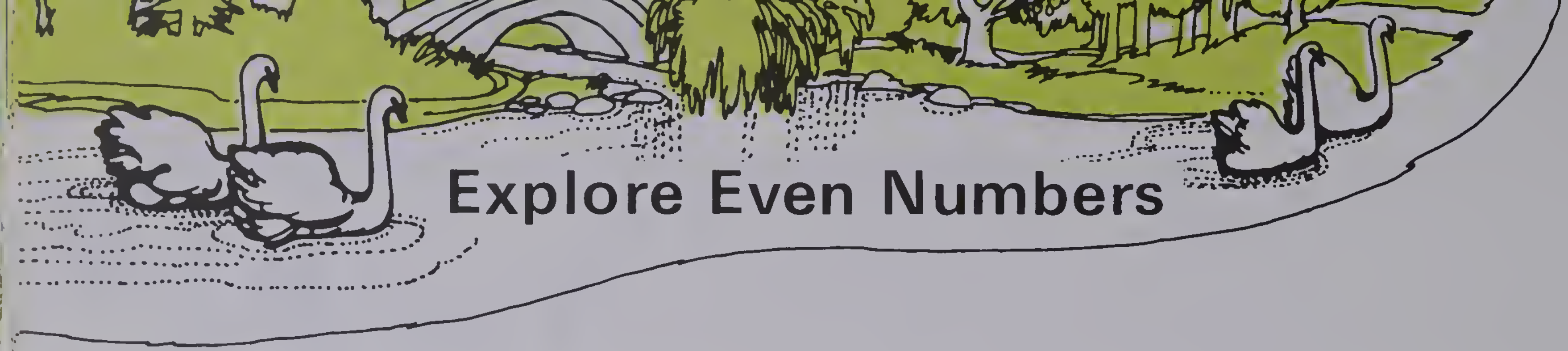
   a) How many parts are there in the fence on one side?
      Draw a picture.
   b) The pen is square.
      How many parts are there in the whole fence?

3. The herder put 60 sheep into 6 pens.
   He put the same number of sheep into each pen.
   How many sheep did he put into each pen?

4. 10 men sheared 10 sheep.
   Each man sheared the same number of sheep.
   How many sheep did each man shear?

5. When the sheep have been shorn,
   they are branded with black paint.
   8 men branded 32 sheep.
   Each man branded the same number of sheep.
   How many sheep did each man brand?

6. The picker gathered the fleece into 36 bags.
   4 trucks took the bags to the warehouse in town.
   Each truck took the same number of bags.
   How many bags did each truck take to the warehouse?



Explore Even Numbers

Start at 2. Count by twos to 100.

All the numbers you said are **even** numbers. How can you tell?
Look at the last numeral of every number you said.

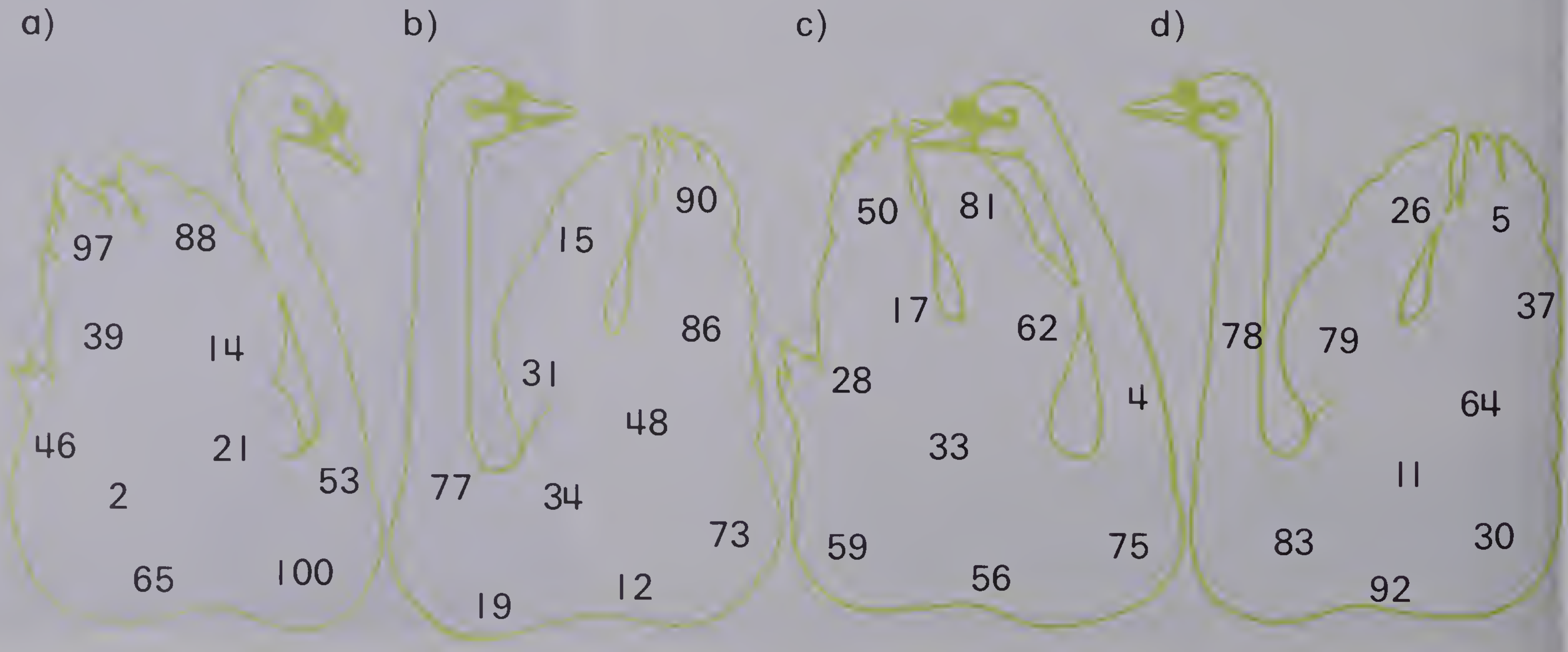
How are 0, 2, 4, 6, and 8 alike?
Complete the division chart in your notebook.

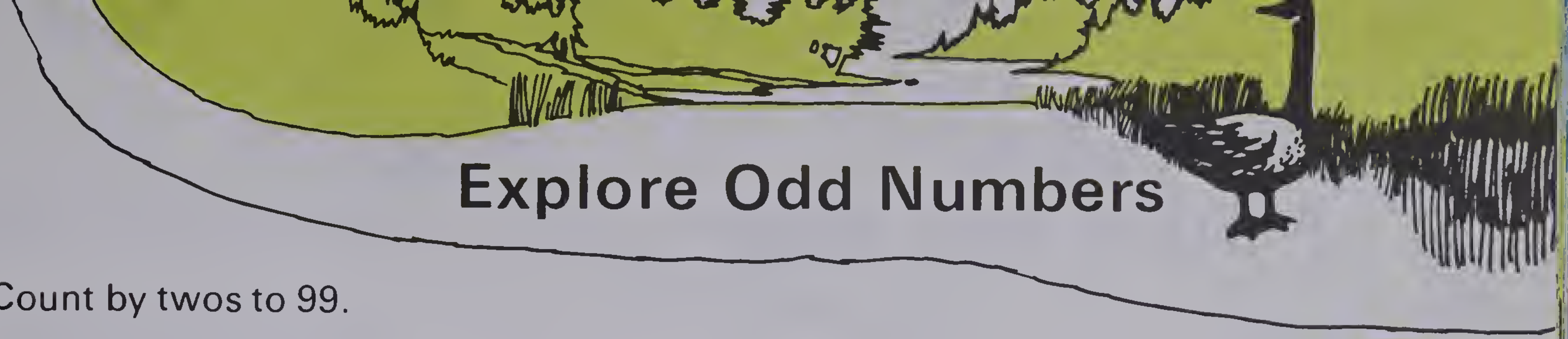
Number Pair	Answer
(0, 2)	0
(2, 2)	?
(4, ?)	2
(6, ?)	3
(8, ?)	4

Since 0 × 2 = 0
then 0 ÷ 2 = 0

If you can divide the number by 2, it is an **even** number.

Which numbers are even numbers?
Write them in your notebook.


a)
97 88 39 14 46 21 2 53 65 100
b)
90 15 86 31 48 77 34 73 19 12
c)
50 81 17 62 28 4 33 59 56 75
d)
26 5 37 78 79 64 11 83 30 92

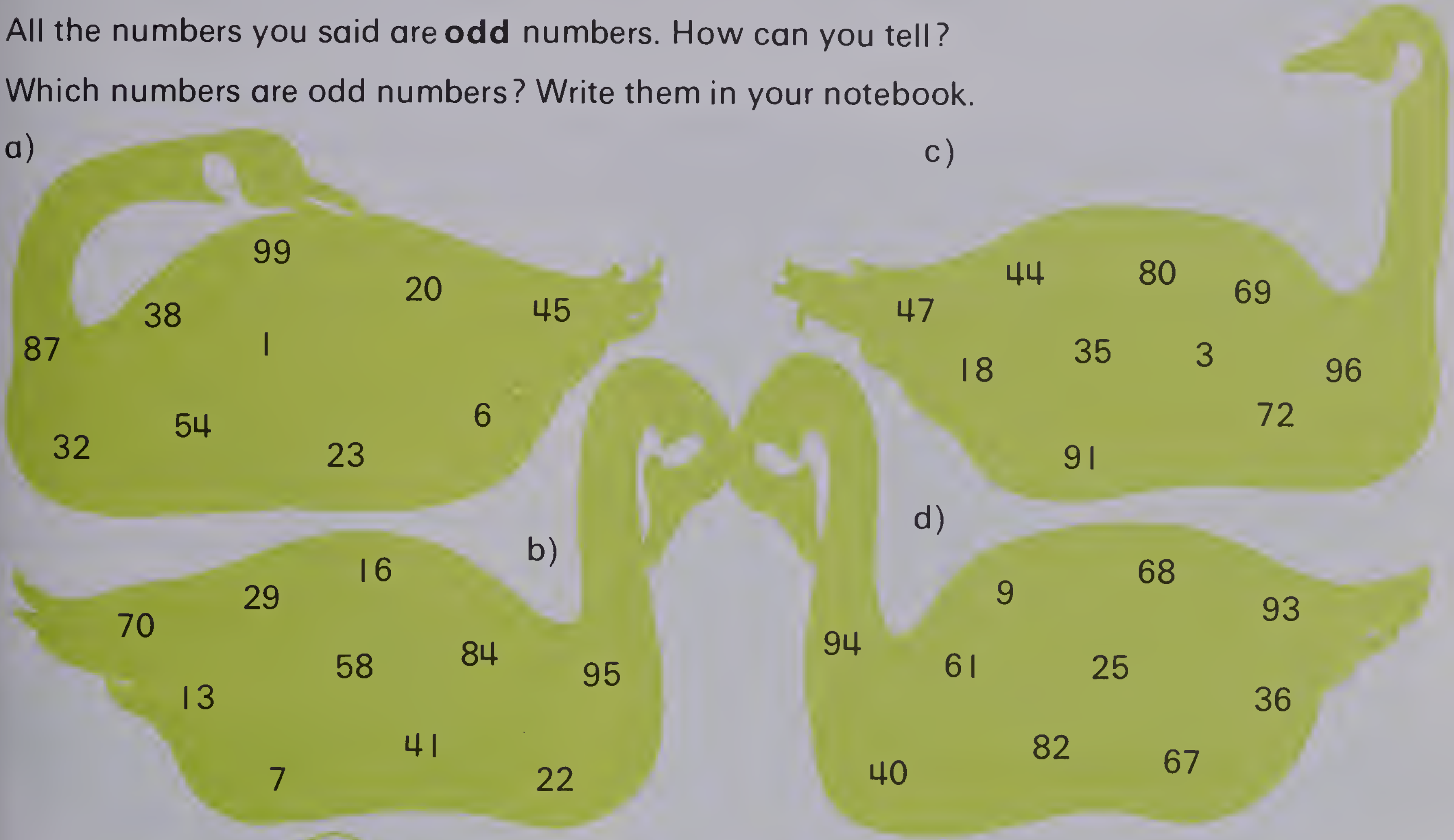


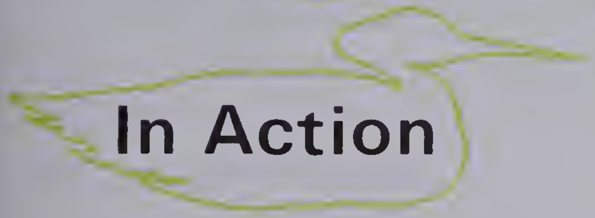
Explore Odd Numbers

Start at 1. Count by twos to 99.

All the numbers you said are **odd** numbers. How can you tell?

Which numbers are odd numbers? Write them in your notebook.

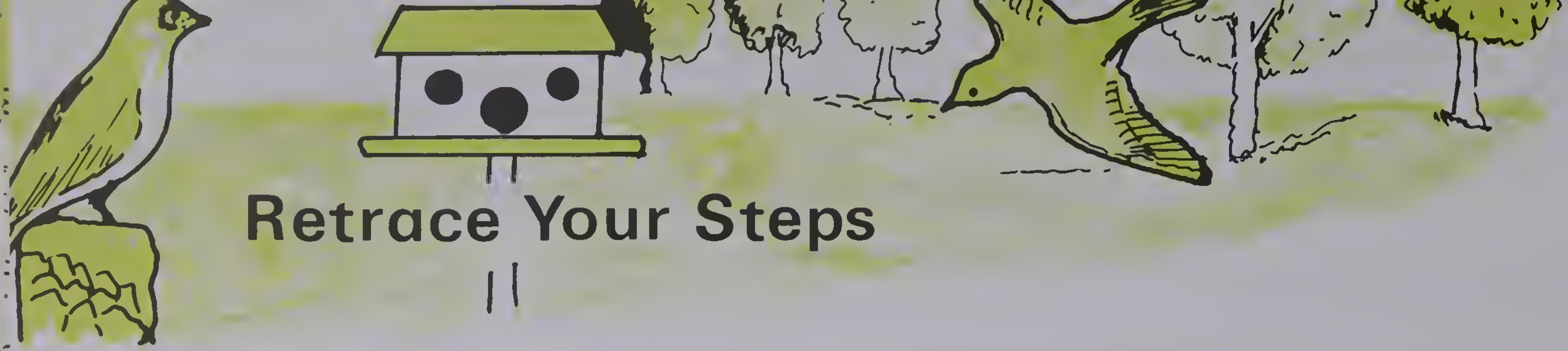

a)
99
20
45
38
87
1
54
6
32
23
b)
16
29
70
58
84
95
13
41
7
22
c)
44
80
69
47
35
3
18
96
72
91
d)
68
9
93
94
61
25
36
82
67
40



In Action

How many? Is the number odd or even?

1. Fingers on 1 hand
2. Fingers on 2 hands
3. Toes on 1 foot
4. Toes on 2 feet
5. Noses
6. Eyes
7. Mouths
8. Ears
9. Wheels on a wagon
10. Wheels on a tricycle
11. Wheels on a bicycle
12. Players on a hockey team
13. Defensemen
14. Goalies
15. Players on a baseball team
16. Pitchers
17. Shortstops
18. Centimetres in a metre
19. Sides in a triangle
20. Sides in a quadrilateral
21. Sides in a pentagon
22. Sides in a decagon
23. Days in a week
24. Days in this month

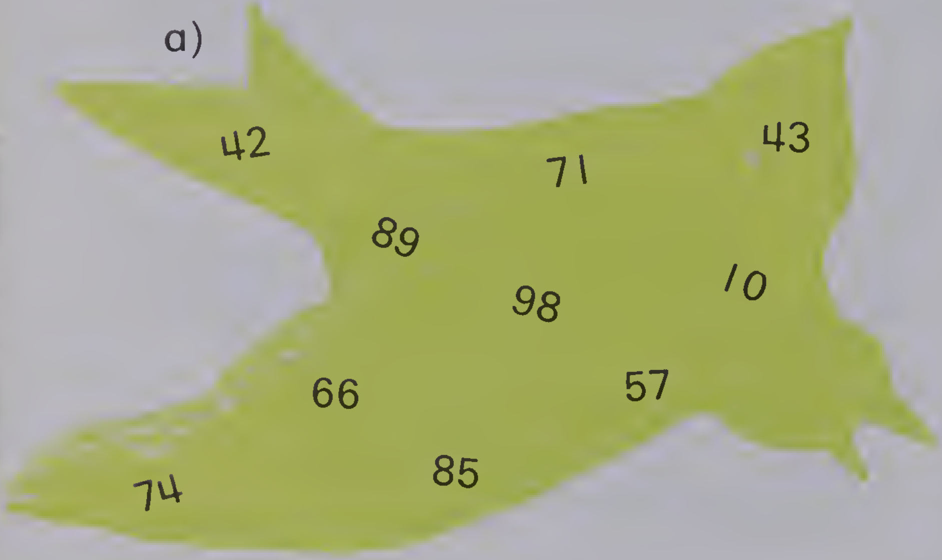


Retrace Your Steps

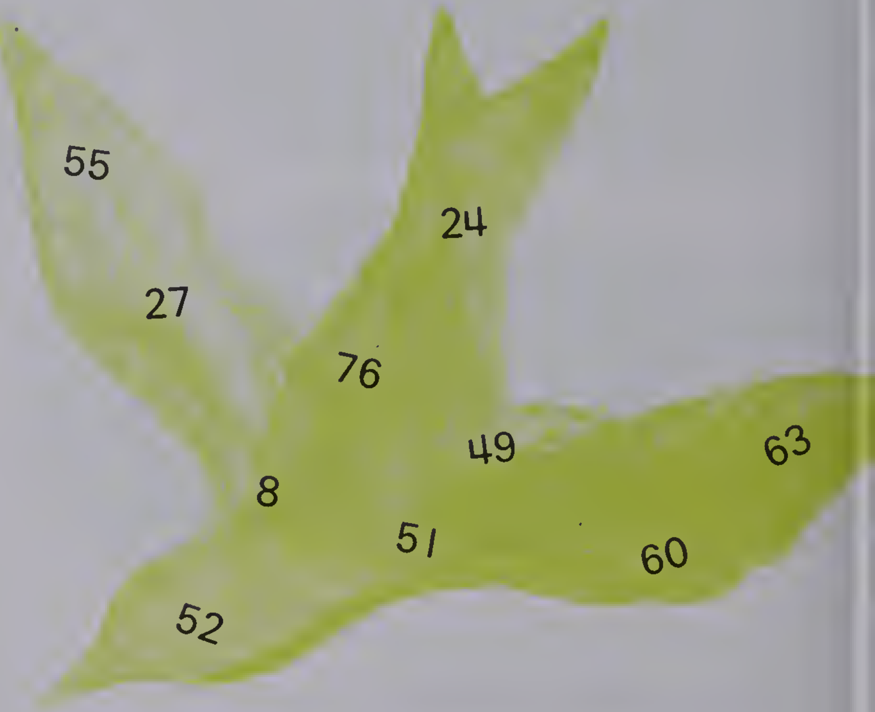
1. Count by twos.
   - a) Start at 2. Count to 30.
   - b) Start at 30. Count to 60.
   - c) Start at 60. Count to 100.
   - d) Start at 1. Count to 21.
   - e) Start at 21. Count to 61.
   - f) Start at 61. Count to 99.

2. Which numbers are even numbers?
   Which numbers are odd numbers?
   Write them in 2 lists in your notebook.

a)

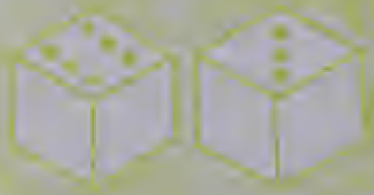


b)



3. Work with someone in your group.
   Use 2 ordinary dice.
   Roll the dice.
   Are the numbers odd or even?

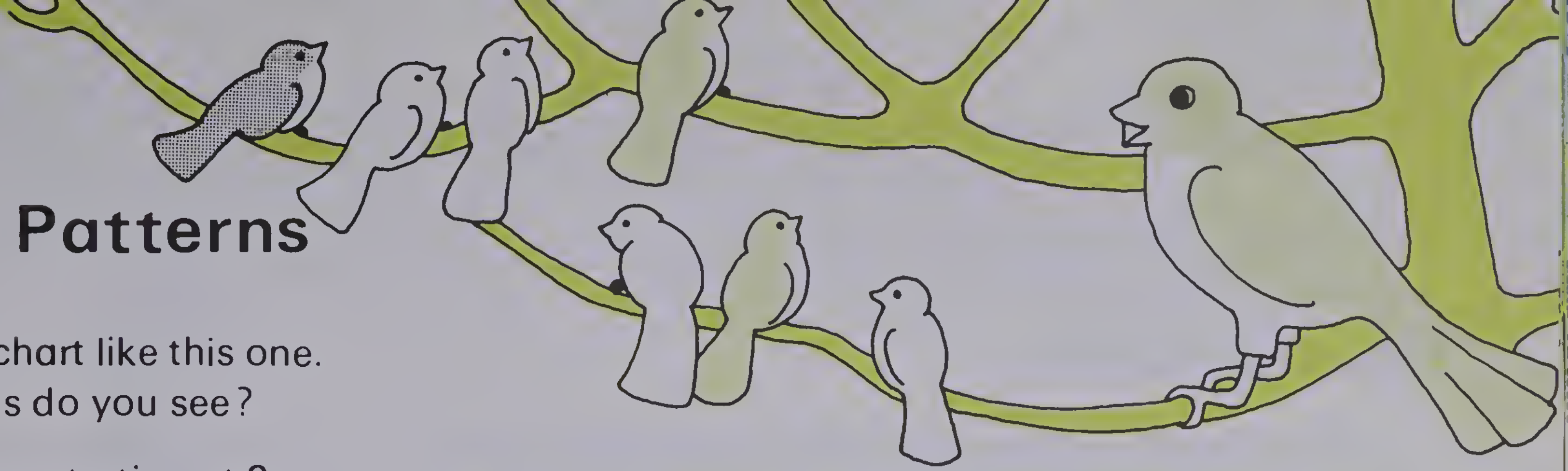
   Write number pairs using the numerals on the dice.
   Add, subtract, multiply, and divide, whenever you can.
   Are the answers odd or even?



6 even
3 odd

Add. (6, 3) 9 odd
Subtract. (6, 3) 3 odd
Multiply. (6, 3) 18 even
Divide. (6, 3) 2 even

Can you tell when an answer will be even or odd?



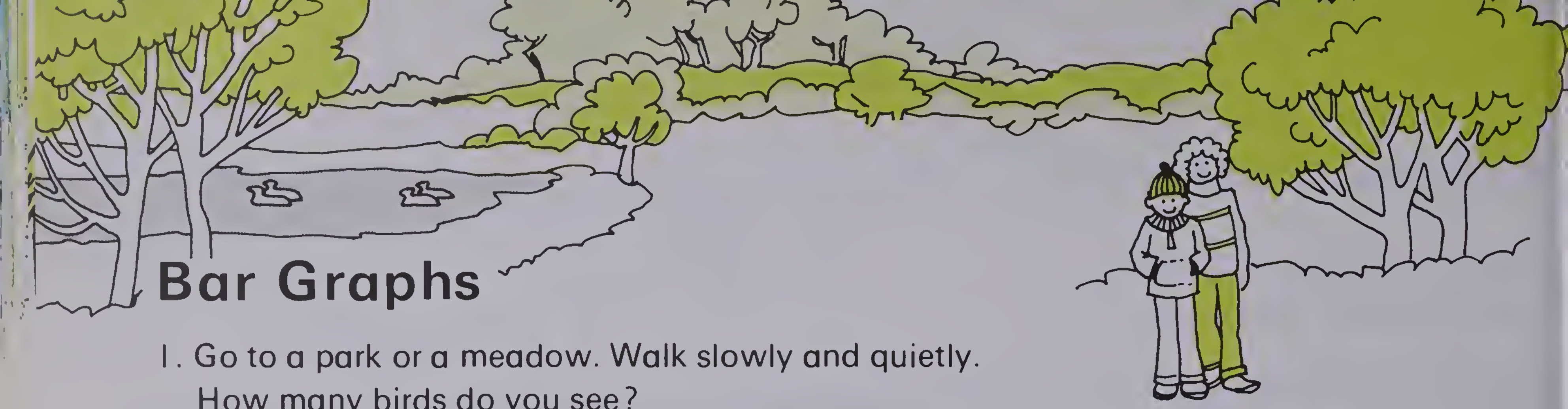
Number Patterns

1. Make a 100 chart like this one.
   What patterns do you see?
2. Count by twos, starting at 2.
   Circle the numerals in red.
   Tell about the pattern.
3. Count by threes, starting at 3.
   Circle the numerals in blue.
   Tell about the pattern.
4. What numerals are circled
   in both red and blue?
   Tell about the pattern.
5. Make another 100 chart.
   Count by fours, starting at 4.
   Circle the numerals in green.
   Tell about the pattern.
6. Count by fives, starting at 5.
   Circle the numerals in orange.
   Tell about the pattern.
7. What numerals are circled
   in both green and orange?
   Tell about the pattern.
8. Now look at the 100 chart again.
   What patterns do you see?
9. Continue the patterns.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

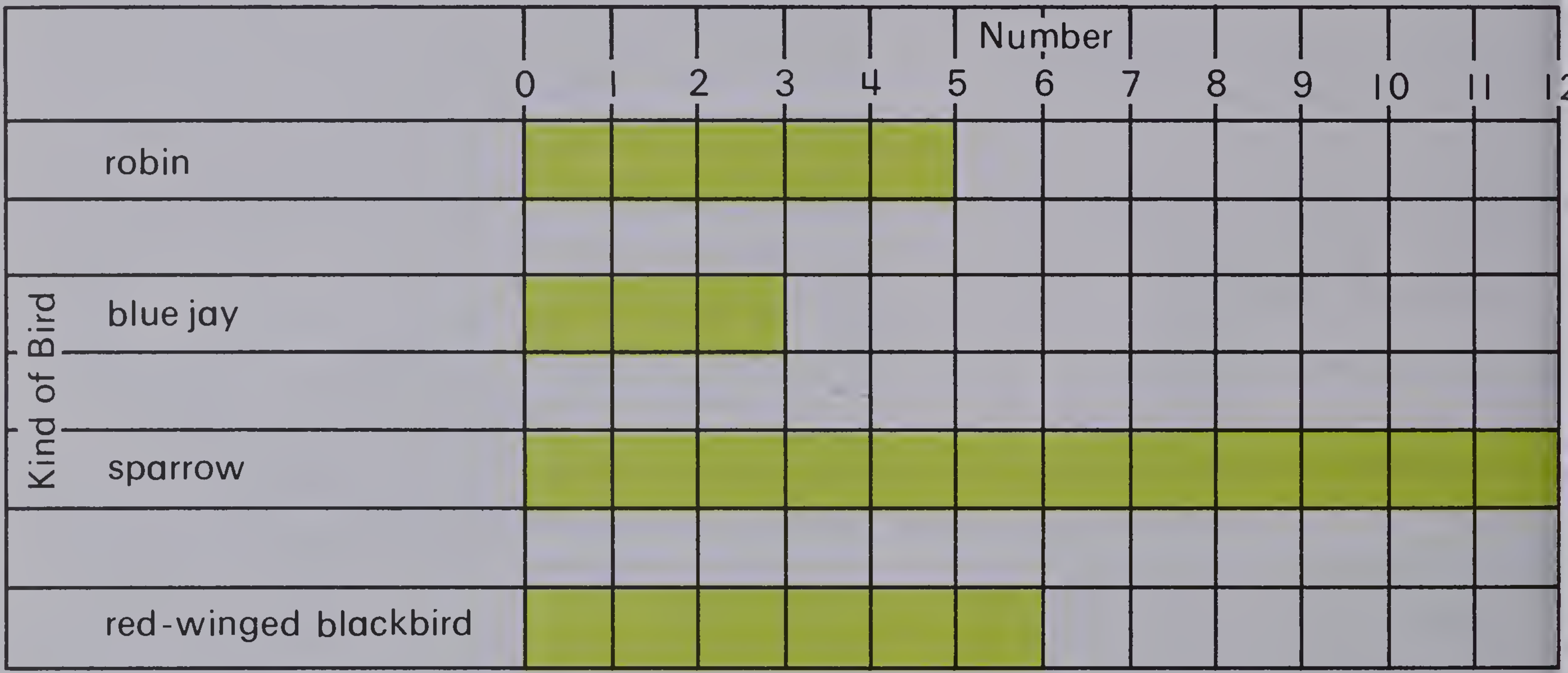
a) 36 39 41 44 ? ? ? ?

b) 98 97 93 92 88 87 ? ?



Bar Graphs

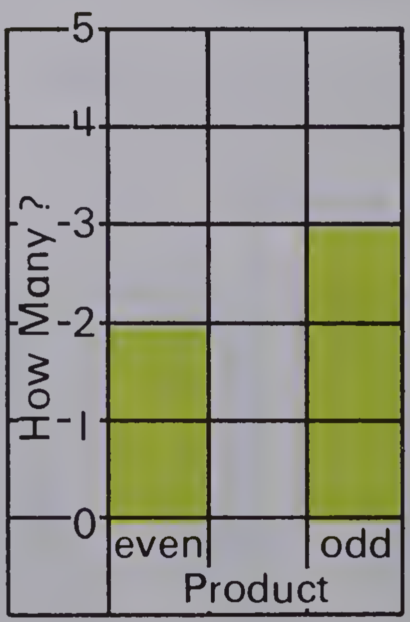
1. Go to a park or a meadow. Walk slowly and quietly.
   How many birds do you see?
   If you work with 3 classmates, you can make a graph of the kinds of birds you see.

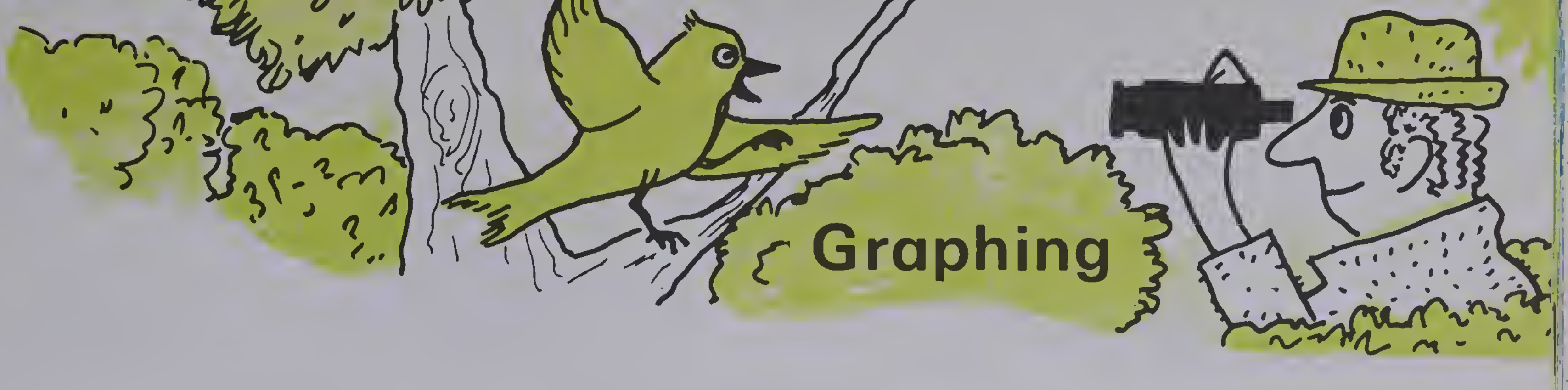


The bars of colour show how many birds we saw.

2. a) Roll 2 ordinary dice.
   Multiply the numbers.
   Is the product odd or even?
   Do this 20 times.
   Make a graph to show how many odd and even products you had.

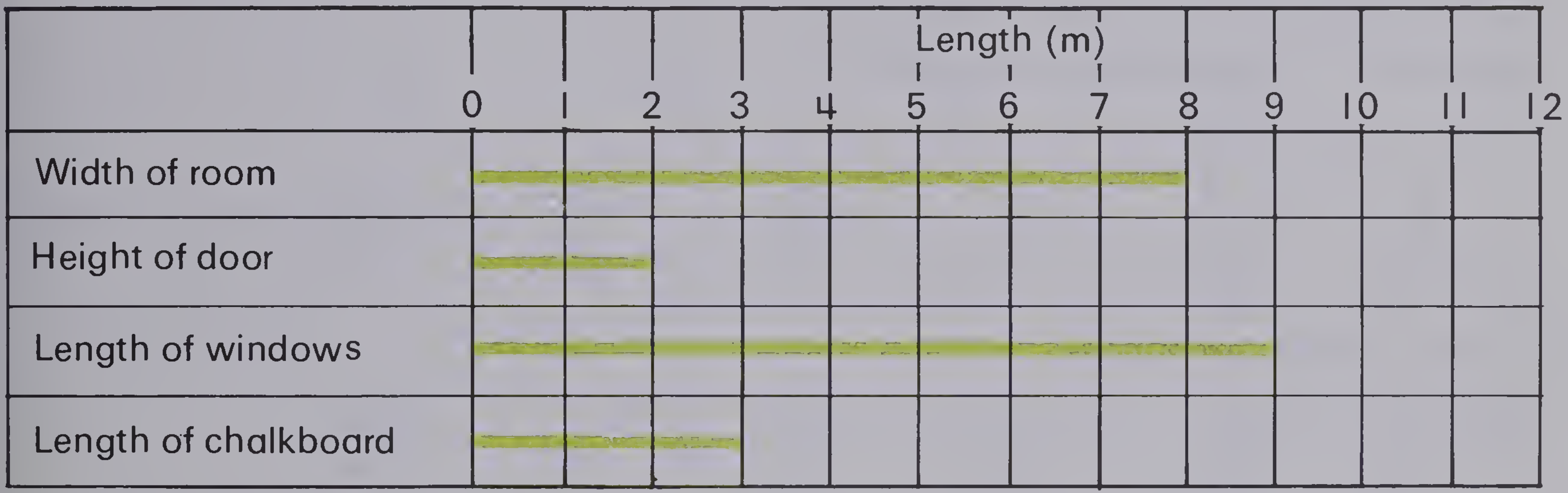
   b) How many **even** products do you think you would get in 30 throws?



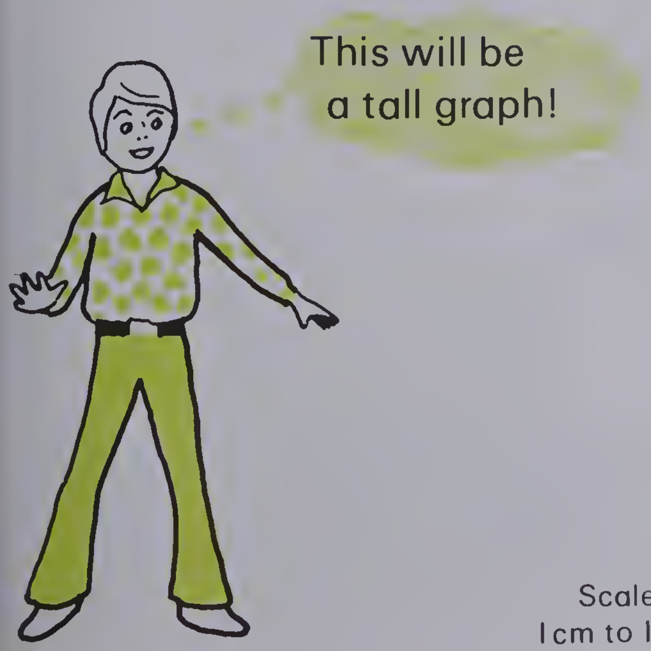


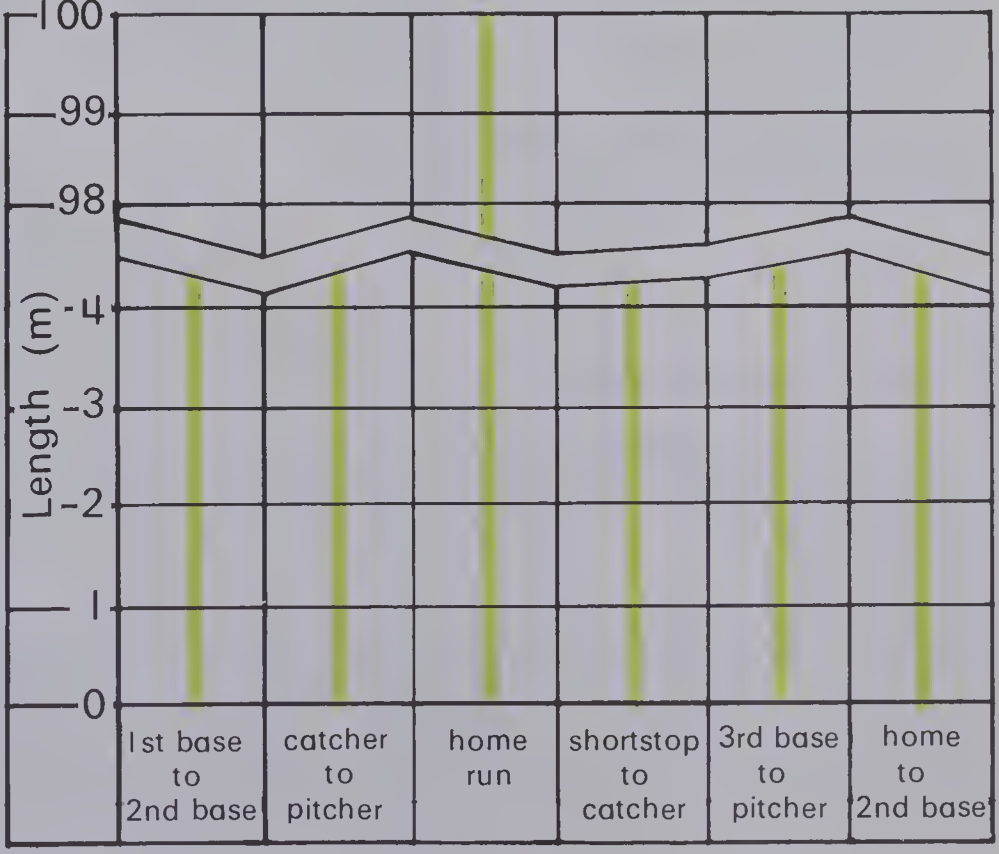
Graphing

1. Use a metre stick or a metre tape. Make measurements of your classroom.
   Make a graph of your measurements.
   For every metre in a measurement, draw a line 1 cm long.

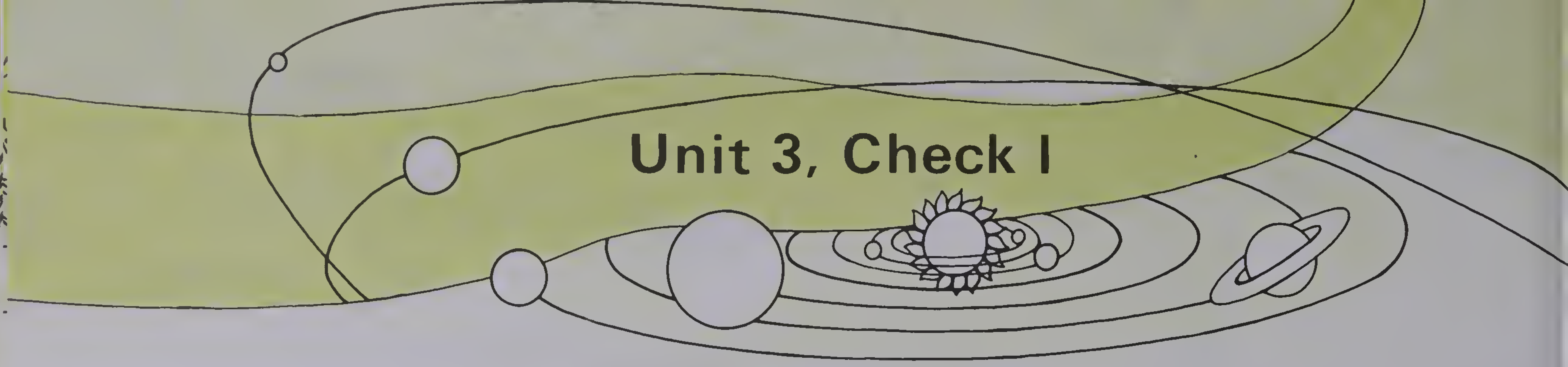


2. Go outside with 3 classmates.
   Use a metre stick or
   a long metric tape.
   Make measurements of the
   baseball diamond.
   Make a graph of your measurements.


This will be a tall graph!



Scale
1 cm to 1 m



Unit 3, Check I

Do you know how to add and subtract well enough?
Check yourself.
The answers are at the bottom of the page.
If you need more practice, see page 235.

1. Add. Use the long form.

a)	b)	c)	d)	e)	f)
46	29	691	289	373	109
38	64	154	436	267	592

2. Add. Think the exchanges.

a)	b)	c)	d)	e)	f)
17	53	345	685	357	495
75	28	582	278	464	146

3. Subtract. Use the long form.

a)	b)	c)	d)	e)	f)
71	62	824	932	840	951
36	18	591	767	295	388

4. Subtract. Think the exchanges.

a)	b)	c)	d)	e)	f)
50	83	713	930	712	824
27	19	440	679	553	186

5. Work with a partner.
Use all the cards numbered 1 to 9 in a deck of playing cards.
Make two 3-digit numbers—one even and one odd.
Subtract.

1. a) 84 b) 93 c) 845 d) 725 e) 640 f) 701
2. a) 92 b) 81 c) 927 d) 963 e) 821 f) 641
3. a) 35 b) 44 c) 233 d) 165 e) 545 f) 563
4. a) 23 b) 64 c) 273 d) 251 e) 159 f) 638

ractice I

1. Add. Use the long form.

a) 15 = 10 + 5
67 = 60 + 7

b) 38
26

c) 44
19

d) 135
582

e) 571
263

f) 497
318

g) 159
686

h) 478
267

i) 254
446

j) 154
589

k) 382
529

2. Subtract. Use the long form.

a) 61 = 50 + 11
25 = 20 + 5

b) 90
37

c) 72
48

d) 914
680

e) 803
671

f) 710
244

g) 521
399

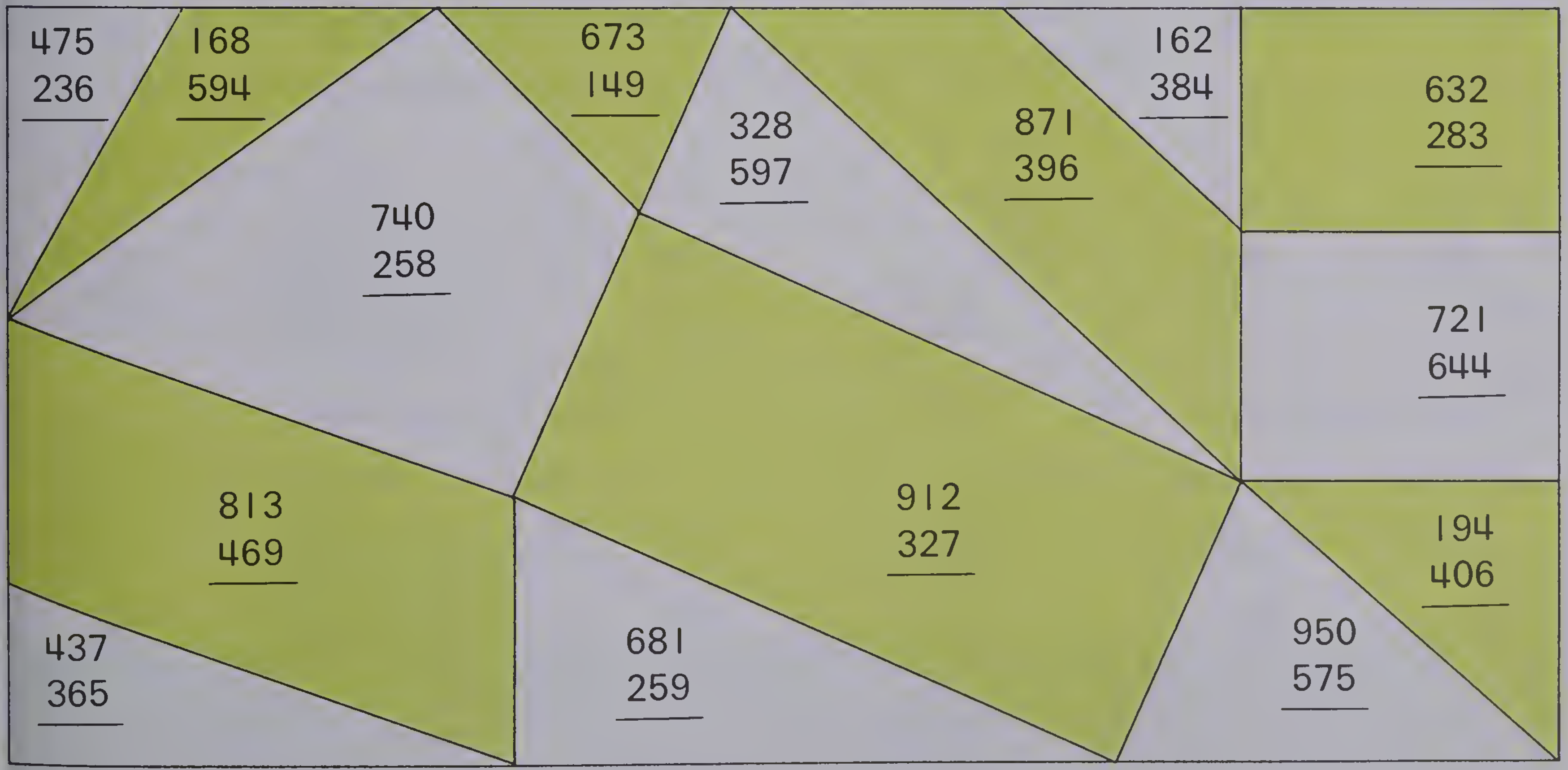
h) 932
148

i) 830
555

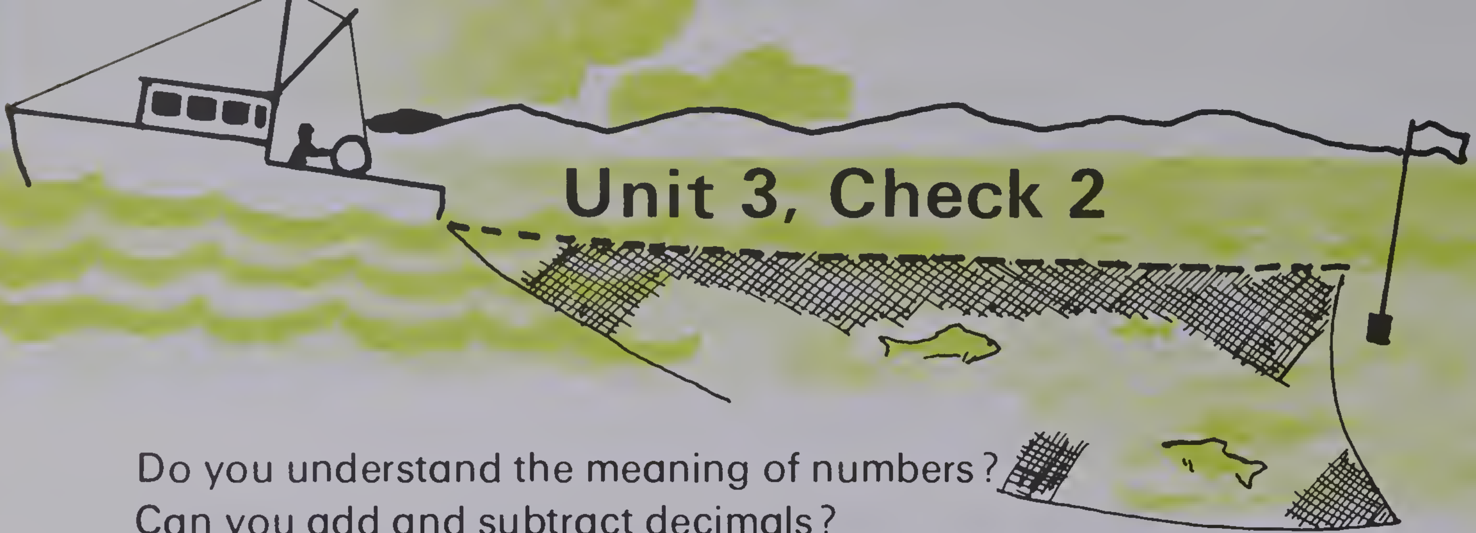
j) 720
466

k) 613
187

3. Add the numbers in the triangles. Think the exchanges.


475
236
168
594
673
149
162
384
632
283
328
597
871
396
740
258
721
644
813
469
912
327
194
406
437
365
681
259
950
575

4. Subtract the numbers in the quadrilaterals. Think the exchanges.



Unit 3, Check 2

Do you understand the meaning of numbers?
Can you add and subtract decimals?
Check your own work.
There is extra practice on page 237.

1. a) Write the meaning of 333.33.
   b) Write a numeral and its meaning.

2. Write the numerals.
   a) 6 tenths
   b) 4 hundredths
   c) 3 and 8 tenths
   d) 7 and 5 hundredths

3. Exchange 10 for 1. Write the numerals.
   a) 12 tenths
   b) 17 hundredths
   c) 1 and 10 tenths
   d) 3 tens and 14 hundredths

4. Add.
   Write the meaning.

$$a)\ \begin{array}{r}0.7\\ \underline{0.5}\end{array}\qquad c)\ \begin{array}{r}6.4\\ \underline{0.8}\end{array}\qquad e)\ \begin{array}{r}61.7\\ \underline{25.3}\end{array}$$

$$b)\ \begin{array}{r}0.9\\ \underline{0.6}\end{array}\qquad d)\ \begin{array}{r}2.5\\ \underline{4.9}\end{array}\qquad f)\ \begin{array}{r}50.6\\ \underline{18.4}\end{array}$$

5. Subtract.
   Write the meaning.

$$a)\ \begin{array}{r}4.2\\ \underline{0.8}\end{array}\qquad c)\ \begin{array}{r}6.1\\ \underline{2.7}\end{array}\qquad e)\ \begin{array}{r}97.4\\ \underline{43.8}\end{array}$$

$$b)\ \begin{array}{r}8.3\\ \underline{0.9}\end{array}\qquad d)\ \begin{array}{r}5.2\\ \underline{1.6}\end{array}\qquad f)\ \begin{array}{r}79.0\\ \underline{64.5}\end{array}$$

6. Add.
   Think the exchange.

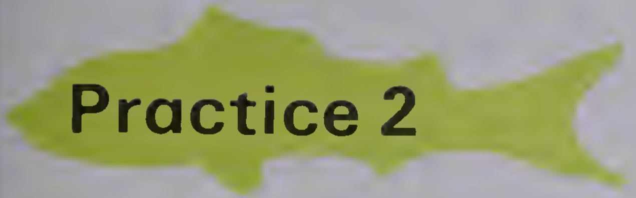
$$a)\ \begin{array}{r}76.4\\ \underline{10.9}\end{array}\qquad b)\ \begin{array}{r}62.5\\ \underline{35.7}\end{array}\qquad c)\ \begin{array}{r}47.8\\ \underline{51.3}\end{array}$$

7. Subtract.
   Think the exchange.

$$a)\ \begin{array}{r}89.1\\ \underline{26.9}\end{array}\qquad b)\ \begin{array}{r}98.2\\ \underline{54.7}\end{array}\qquad c)\ \begin{array}{r}79.0\\ \underline{5.2}\end{array}$$

1. a) 3 hundreds, 3 tens, 3, 3 tenths, and 3 hundredths
2. a) 0.6 b) 0.04 c) 3.8 d) 7.05
4. a) 1.2 c) 7.2 e) 87.0
b) 1.5 d) 7.4 f) 69.0
6. a) 87.3 b) 98.2 c) 99.1

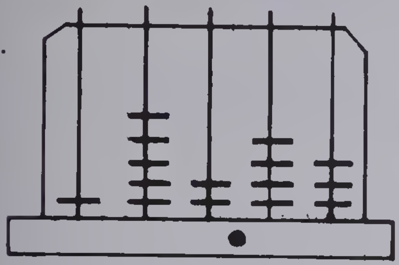
3. a) 1.2 b) 0.17 c) 2.0 d) 30.14
5. a) 3.4 d) 3.6 e) 53.6
b) 7.4 c) 3.4 f) 14.5
7. a) 62.2 b) 43.5 c) 73.8



Practice 2

1. Write the meaning of the circled numeral.

a) 728 b) 96 c) 1.17 d) 11.02 e) 467

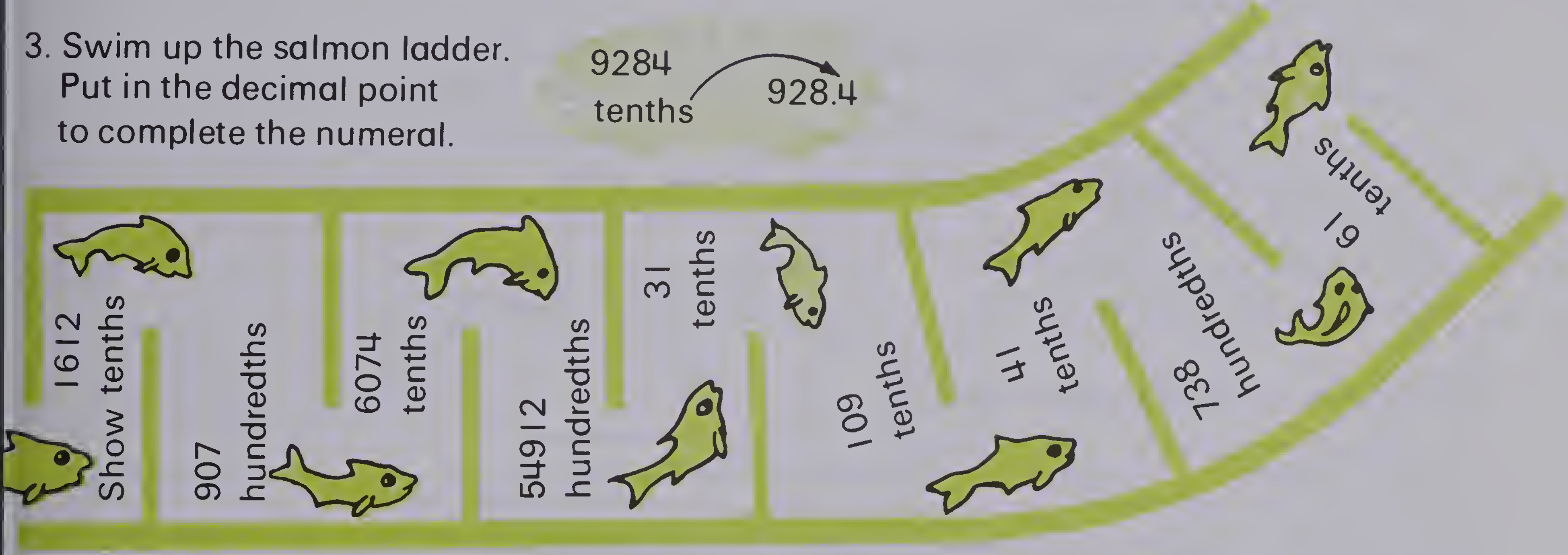
2. 

Draw pictures like this.
Show the numbers.

a) 42 b) 3.6 c) 10.7 d) 1.13 e) 51.02 f) 845 g) 271.9 h) 106.84

3. Swim up the salmon ladder.
Put in the decimal point
to complete the numeral.

9284 tenths → 928.4


1612
Show tenths
907
hundredths
6074
tenths
54912
hundredths
31
tenths
109
tenths
41
tenths
738
hundredths
61
tenths

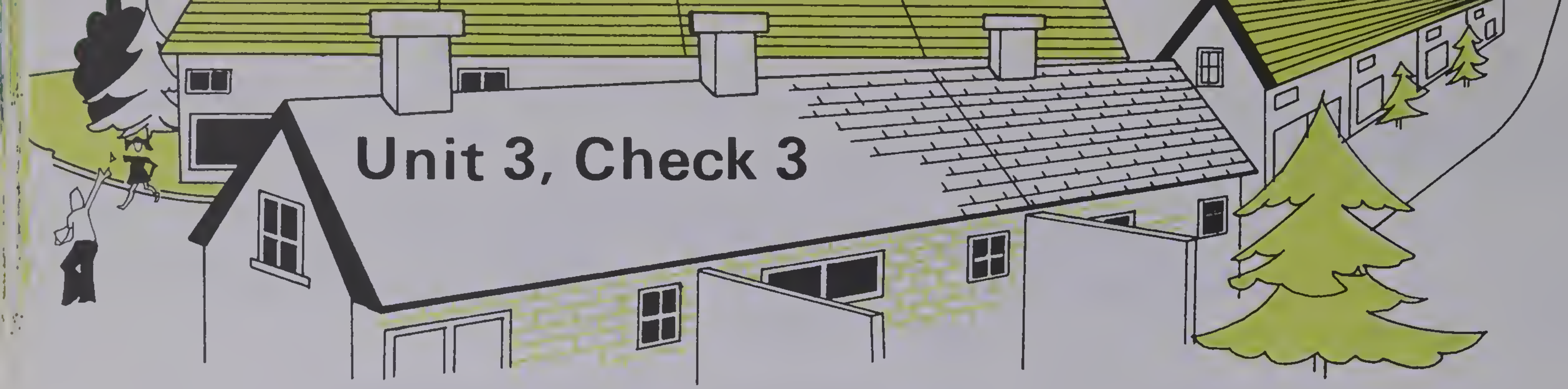
4. Add.
Think the exchange.

a)		b)	c)	d)	e)
34.5	Think 13	40.4	52.3	34.5	3.7
52.8	Remember 1	26.8	13.7	54.9	85.6

5. Subtract.
Think the exchange.

a)		b)	c)	d)	e)
87.1	Think 11, 5	69.0	78.3	85.4	8.2
23.6	Remember 6	53.7	30.5	24.8	2.6

6. Rita is 128.6 cm tall.
Gina is 117.9 cm tall.
What is the difference in their heights?



Unit 3, Check 3

Do you know how to check your change?
Can you add and subtract amounts of money?
Check your own work.

1. Which is the greater amount?
   - a) two $10 bills or eight $2 bills
   - b) five $5 bills or three $10 bills
   - c) four $2 bills or one $10 bill
   - d) three $5 bills or one $20 bill

2. What is your change? You gave the cashier $5 each time.
   - a) A book costs $1.25.
   - b) A catcher's mitt costs $4.86.
   - c) A birdhouse kit costs $3.98.
   - d) A record costs $4.50.
   - e) A kaleidoscope costs $2.47.
   - f) A rubber ball costs $0.79.

3. Complete the table in your notebook.

Cost of Article	Change	Amount You Gave Cashier
$1.95	5¢	
$2.58	42¢	
$6.49	$1.01	
$8.27	$1.73	

4. Find the total amount.

a) $65.36
30.51

b) $52.61
34.58

c) $39.21
46.36

5. Find the difference in amount.

a) $98.69
23.10

b) $87.26
64.53

c) $90.84
56.10

6. Carlo earned $1.75 Saturday morning and $2.50 Saturday afternoon.
How much did he earn on Saturday?

1. a) two $10 bills b) three $10 bills c) one $10 bill d) one $20 bill
2. a) $3.75 b) $0.14 c) $1.02 d) 50¢ e) $2.53 f) $4.21
3. $2.00, $3.00, $7.50, $10.00
4. a) $95.87 b) $87.19 c) $85.57 5. a) $75.59 b) $22.73 c) $34.74 6. $4.25

Practice 3

1. Which is the lesser amount?
   a) one $5 bill or three $2 bills
   b) two $10 bills or seven $2 bills
   c) two $10 bills or three $5 bills
   d) one $20 bill or five $5 bills

2. What is your change?
   Use play money to find the answers.
   a) You bought a model car for $1.68.
   You gave the cashier $2.
   b) You bought a baseball bat for $2.49.
   You gave the cashier $10.
   c) You bought a leather kit for $11.98.
   You gave the cashier $20.
   d) You bought a colouring book for 89¢.
   You gave the cashier $5.

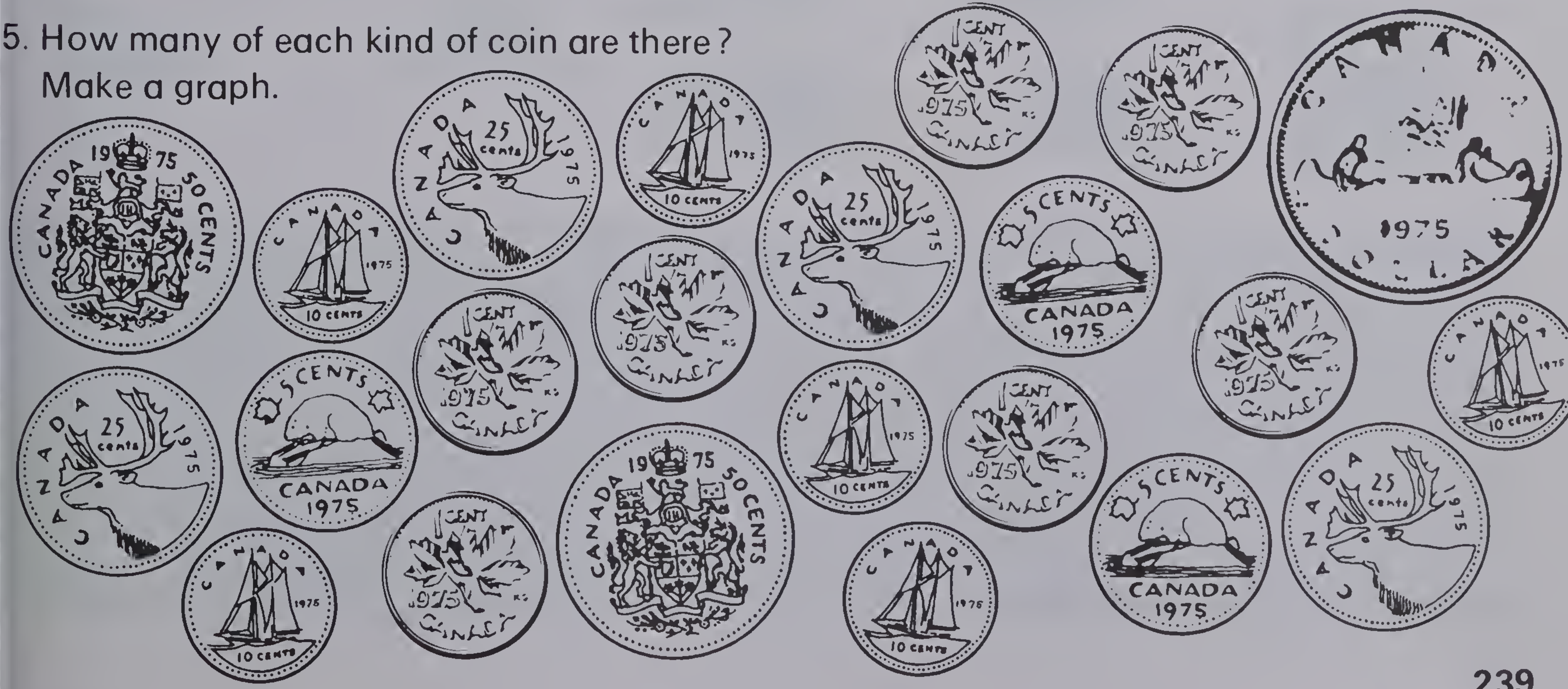
3. Add.

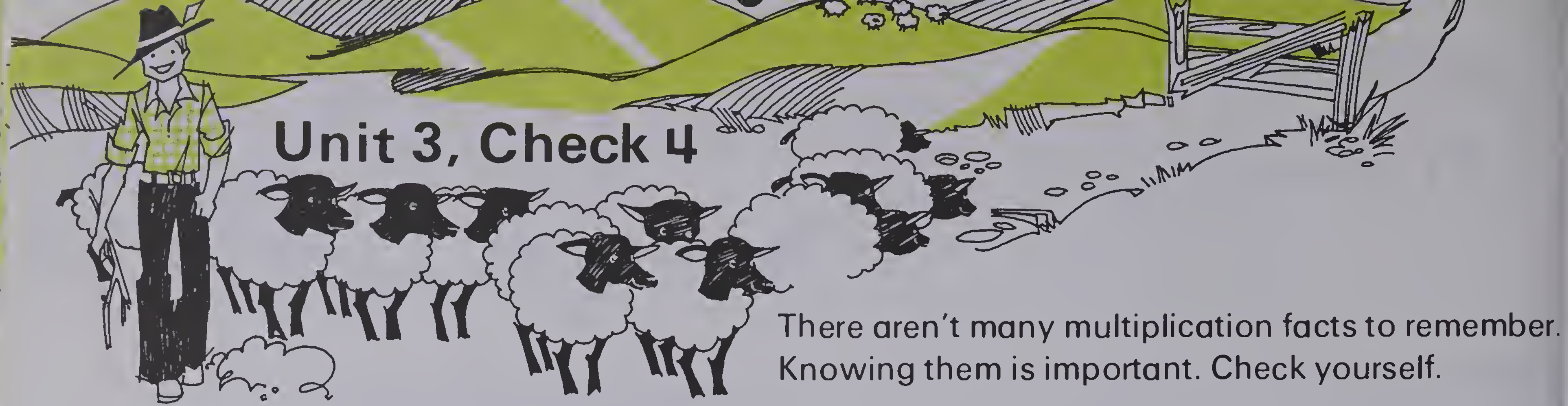
a) $43.51	b) $25.16	c) $34.24	d) $64.37	e) $43.70	f) $26.95
56.23	58.72	27.45	30.91	15.68	68.53

4. Subtract.

a) $87.86	b) $73.74	c) $92.68	d) $89.09	e) $97.46	f) $96.25
64.32	39.50	79.12	52.74	65.91	78.83

5. How many of each kind of coin are there?
   Make a graph.





Unit 3, Check 4

There aren't many multiplication facts to remember. Knowing them is important. Check yourself.

1. Multiply. Just think the answer, then write it.

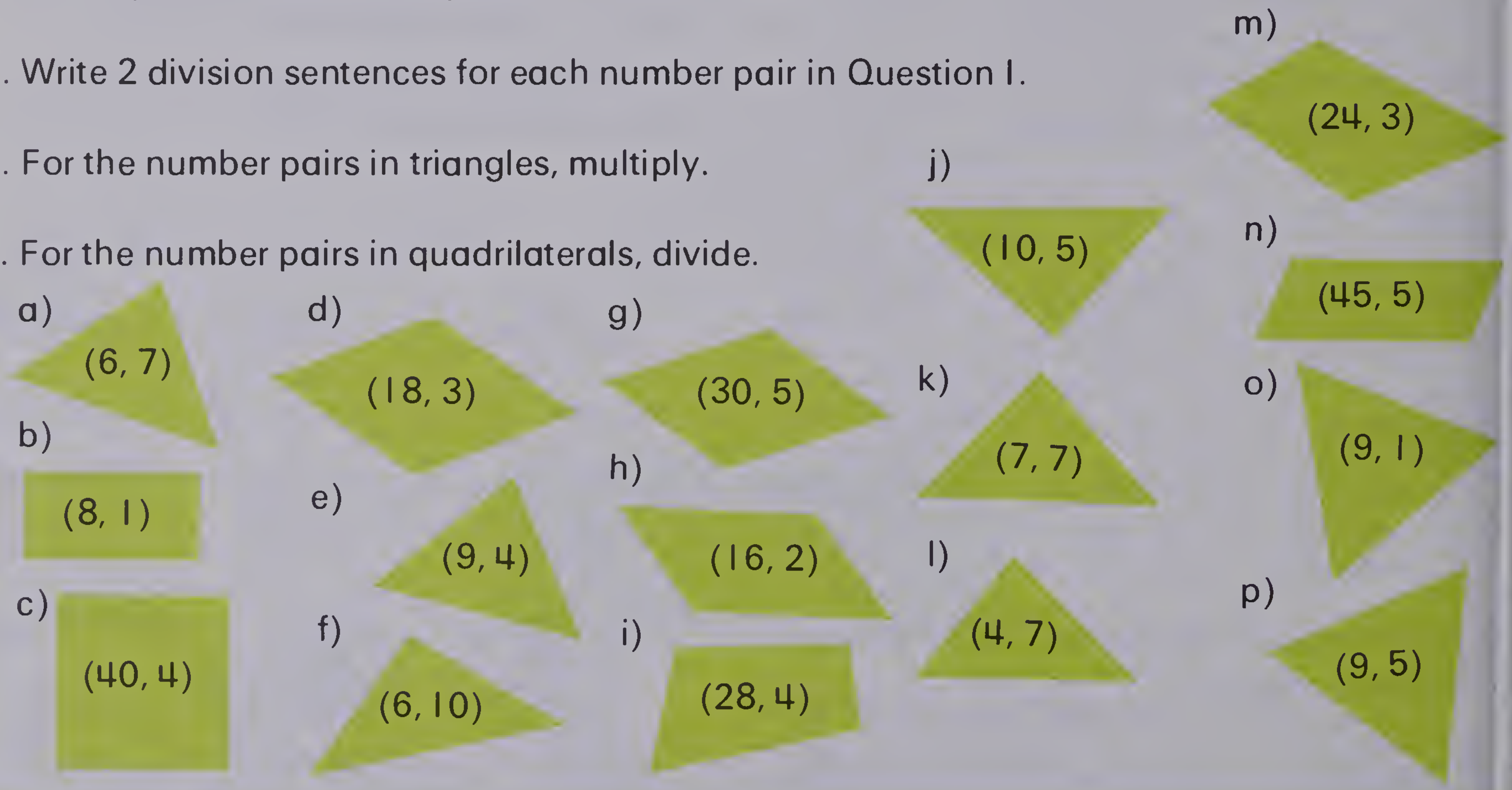
a) (8, 3)   c) (10, 2)   e) (5, 7)   g) (3, 10)   i) (1, 6)   k) (6, 9)   m) (9, 7)
b) (4, 6)   d) (4, 8)   f) (10, 4)   h) (8, 5)   j) (10, 7)   l) (9, 3)   n) (1, 7)

When you know the multiplication facts well, division is easy.

2. Write 2 division sentences for each number pair in Question 1.

3. For the number pairs in triangles, multiply.

4. For the number pairs in quadrilaterals, divide.



1. a) 24   c) 20   e) 35   g) 30   i) 9   k) 54   m) 63
b) 24   d) 32   f) 40   h) 40   j) 70   l) 27   n) 7

2. a) 24 ÷ 3 = 8
24 ÷ 8 = 3
b) 24 ÷ 6 = 4
24 ÷ 4 = 6
c) 20 ÷ 2 = 10
20 ÷ 10 = 2
d) 32 ÷ 8 = 4
32 ÷ 4 = 8

e) 35 ÷ 7 = 5
35 ÷ 5 = 7
f) 40 ÷ 4 = 10
40 ÷ 10 = 4
g) 30 ÷ 10 = 3
30 ÷ 3 = 10
h) 40 ÷ 5 = 8
40 ÷ 8 = 5

i) 6 ÷ 6 = 1
6 ÷ 1 = 6
j) 70 ÷ 7 = 10
70 ÷ 10 = 7
k) 54 ÷ 6 = 9
54 ÷ 9 = 6
l) 27 ÷ 3 = 9
27 ÷ 9 = 3

m) 63 ÷ 7 = 9
63 ÷ 9 = 7
n) 7 ÷ 7 = 1
7 ÷ 1 = 7

3. a) 42
e) 36
f) 60
j) 50
k) 49
l) 28
o) 9
p) 45

4. b) 8
c) 10
d) 6
g) 6
h) 8
i) 7
m) 8
n) 9

Practice 4

1. Multiply.
Use the pictures you made for pages 212 to 218 if you need help.

a) $\begin{array}{r} 10 \\ 5 \\ \hline \end{array}$ c) $\begin{array}{r} 4 \\ 8 \\ \hline \end{array}$ e) $\begin{array}{r} 9 \\ 7 \\ \hline \end{array}$ g) $\begin{array}{r} 7 \\ 10 \\ \hline \end{array}$ i) $\begin{array}{r} 8 \\ 6 \\ \hline \end{array}$ k) $\begin{array}{r} 10 \\ 1 \\ \hline \end{array}$ m) $\begin{array}{r} 7 \\ 2 \\ \hline \end{array}$ o) $\begin{array}{r} 9 \\ 9 \\ \hline \end{array}$ q) $\begin{array}{r} 8 \\ 5 \\ \hline \end{array}$

b) $\begin{array}{r} 4 \\ 9 \\ \hline \end{array}$ d) $\begin{array}{r} 5 \\ 7 \\ \hline \end{array}$ f) $\begin{array}{r} 8 \\ 10 \\ \hline \end{array}$ h) $\begin{array}{r} 1 \\ 9 \\ \hline \end{array}$ j) $\begin{array}{r} 3 \\ 8 \\ \hline \end{array}$ l) $\begin{array}{r} 9 \\ 4 \\ \hline \end{array}$ n) $\begin{array}{r} 8 \\ 7 \\ \hline \end{array}$ p) $\begin{array}{r} 2 \\ 8 \\ \hline \end{array}$ r) $\begin{array}{r} 9 \\ 6 \\ \hline \end{array}$

2. Divide.

a) $9\overline{)90}$ c) $4\overline{)32}$ e) $7\overline{)14}$ g) $8\overline{)16}$ i) $10\overline{)30}$ k) $6\overline{)36}$ m) $9\overline{)9}$ o) $3\overline{)27}$

b) $6\overline{)54}$ d) $5\overline{)35}$ f) $9\overline{)27}$ h) $1\overline{)6}$ j) $9\overline{)72}$ l) $7\overline{)28}$ n) $5\overline{)45}$ p) $2\overline{)18}$

3. Find related questions.
Write the answers.

$7 \times 3 = 21$ $21 \div 3 = 7$
$3 \times 7 = 21$ $21 \div 7 = 3$

$48 \div 8$ 4×8 $32 \div 4$ $90 \div 10$ $21 \div 3$ 9×2 $45 \div 5$ 6×8
$32 \div 8$
6×4 9×5 $90 \div 9$ $24 \div 4$ $18 \div 2$ 3×7
7×3 $18 \div 9$ 4×6 $24 \div 6$ 9×10 8×6
5×9 $48 \div 6$ 10×9 $21 \div 7$ 8×4 $45 \div 9$ 2×9

4. There were 28 sheep in 4 pens.
The same number of sheep
were in each pen.
How many sheep were in a pen?

5. The rancher spent 8 hours
at the cattle auction.
He sold 9 cattle each hour.
How many cattle did he sell altogether?

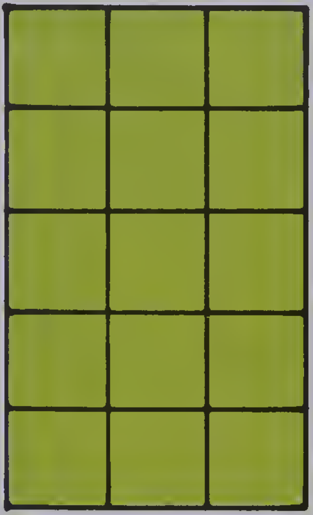
Unit 3, Check 5

We use measurement every day.
Can you measure length, area, volume, capacity, mass, and temperature?
Check your answers with those at the bottom of the page.

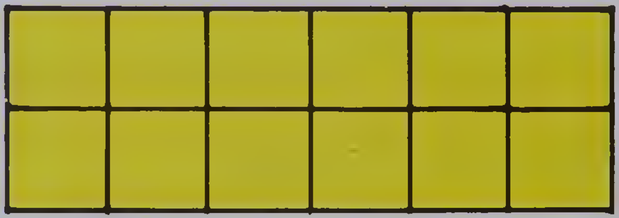
1. Turn over your *mathways* ruler so the blank side faces up.
   Try to draw lines with these lengths. Check each guess.
   a) 10 cm b) 7.5 cm c) 15 cm d) 12.5 cm e) 20 cm f) 18 cm

2. What is the area of each shape in square centimetres?

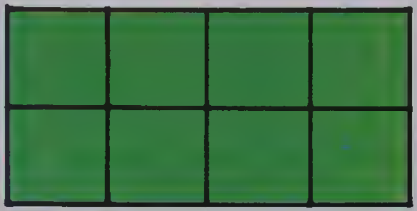
a)



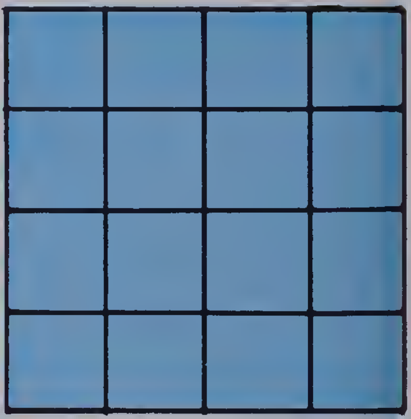
b)



c)



d)



3. Use 1 cm cubes that lock together. Build 3 layers on each pattern in Question 2.
   What is the volume?

4. Which is greater?

   a) 1 L or 750 mL b) 90°C or temperature of boiling water c) 800 g or 1 kg

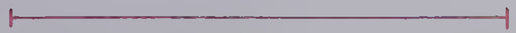
5. Which is less?

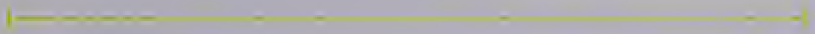
   a) 1 kg or 500 g b) 300 mL or 1 L c) normal body temperature or room temperature

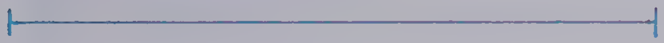
2. a) 15 cm^2 b) 12 cm^2 c) 8 cm^2 d) 16 cm^2
3. a) 45 cm^3 b) 36 cm^3 c) 24 cm^3 d) 48 cm^3
4. a) 1 L b) boiling point c) 1 kg 5. a) 500 g b) 300 mL c) room temperature

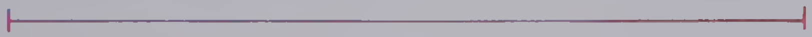
Practice 5

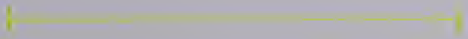
1. How long is each line segment?
   Guess, then measure.

   a) 

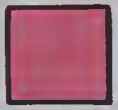
   b) 

   c) 

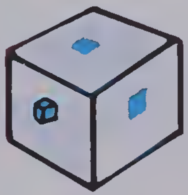
   d) 

   e) 

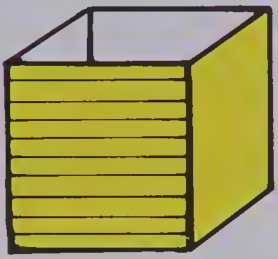
2. Use paper marked into 1 cm squares.
   Outline and colour some squares and rectangles.
   Find the area of each of your shapes.



3. Use 1 cm cubes that lock together.
   Build 2 layers on each of your shapes.
   What is the volume?

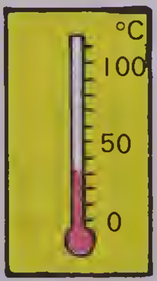


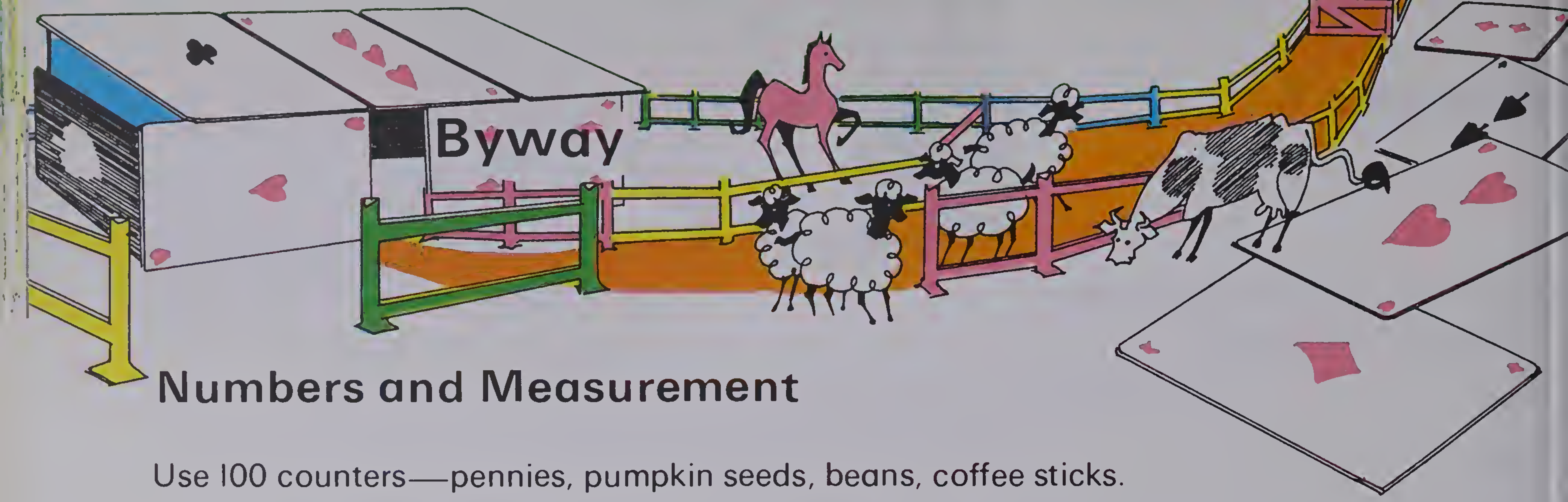
4. Use a 100 mL beaker.
   Mark your own litre container
   every 100 mL up to 900 mL.
   Where would the 1000 mL mark go?
   Use your litre container to find
   the capacity of other containers.



5. Make 2 more 1 kg masses, like the one
   you made for page 211.
   Use a balance.
   Find objects with a mass of 1 kg, 2 kg, or 3 kg.
   Guess each mass before you measure it.

6. Use a Celsius thermometer.
   Find the temperature at several different places
   in your school or schoolyard.
   Make a graph to show the temperatures.
   Why do the temperatures differ from place to place?



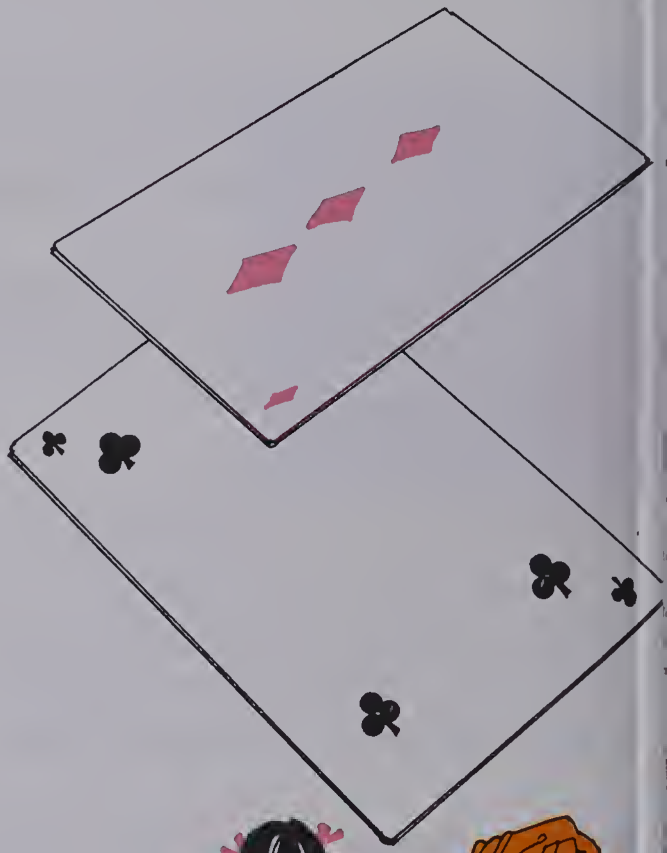


Byway

Numbers and Measurement

Use 100 counters—pennies, pumpkin seeds, beans, coffee sticks.
How many ways can you divide 100 counters into equal sets?
For example, you can make 1 set of 100 counters,
2 sets of 50 counters, 4 sets of 25 counters, and so on.
Make a list of number pairs to show your results.

Equal sets	Number Pair
1 set of 100 counters	(1, 100)
2 sets of 50 counters	(2, 50)
⋮	⋮



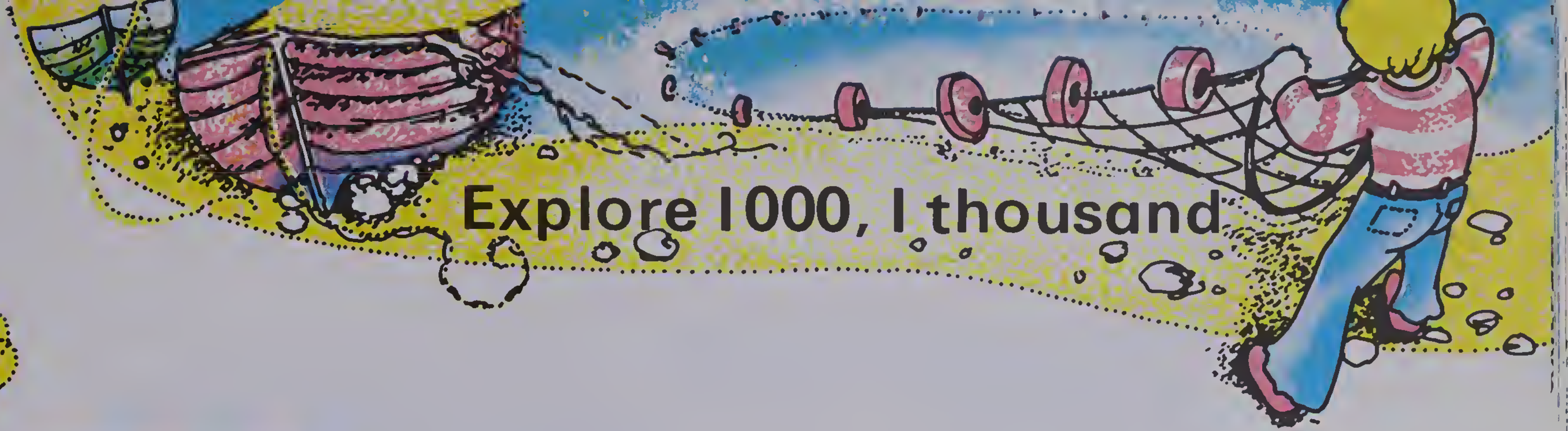
Use paper marked into 1 cm squares.
Colour the squares to make a pattern like those on page 213 for each of your number pairs.

Find the area of each pattern. What do you discover?

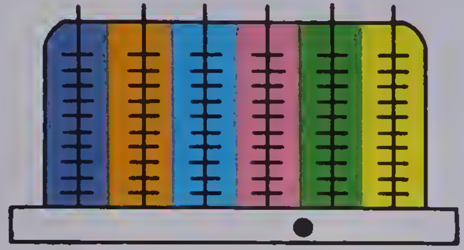
Find the perimeter of each pattern. What do you discover?

Make It Snappy!

Work with a friend.
Remove the face cards from a deck of playing cards.
Deal out all the cards.
Each of you turns a card over.
The numerals on the cards form a multiplication number pair.
The first player to call out the answer keeps the pair of cards.
The player who collects the most pairs wins.



Explore 1000, 1 thousand



10 yellow discs = ? green disc
? green discs = 1 red disc
10 red discs = ? blue disc
? blue discs = 1 orange disc
10 orange discs = 1 purple disc

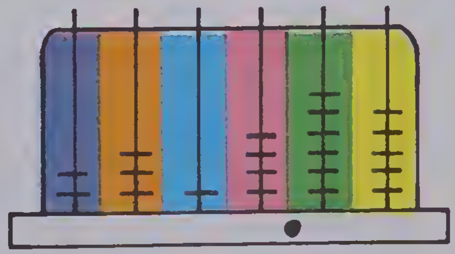
The purple discs of our abacus show thousands.

Exchange 10 for 1.
Complete the chart in your notebook.

				1 green	? yellow
			1 red		? yellow
		1 blue	? red		
	1 orange		? red		
? purple			1000 red		
2 purple			? red		
5 purple			? red		

In this chart, 1 purple = 1000
1 orange = 100
1 blue = 10
1 red = 1
1 green = 0.1
1 yellow = 0.01

Write the number for
2 purple, 3 orange, 1 blue, 4 red, 6 green, 5 yellow
2 thousands, 3 hundreds, 1 ten, 4, 6 tenths, and 5 hundredths
2000 + 300 + 10 + 4 + 0.6 + 0.05
2314.65

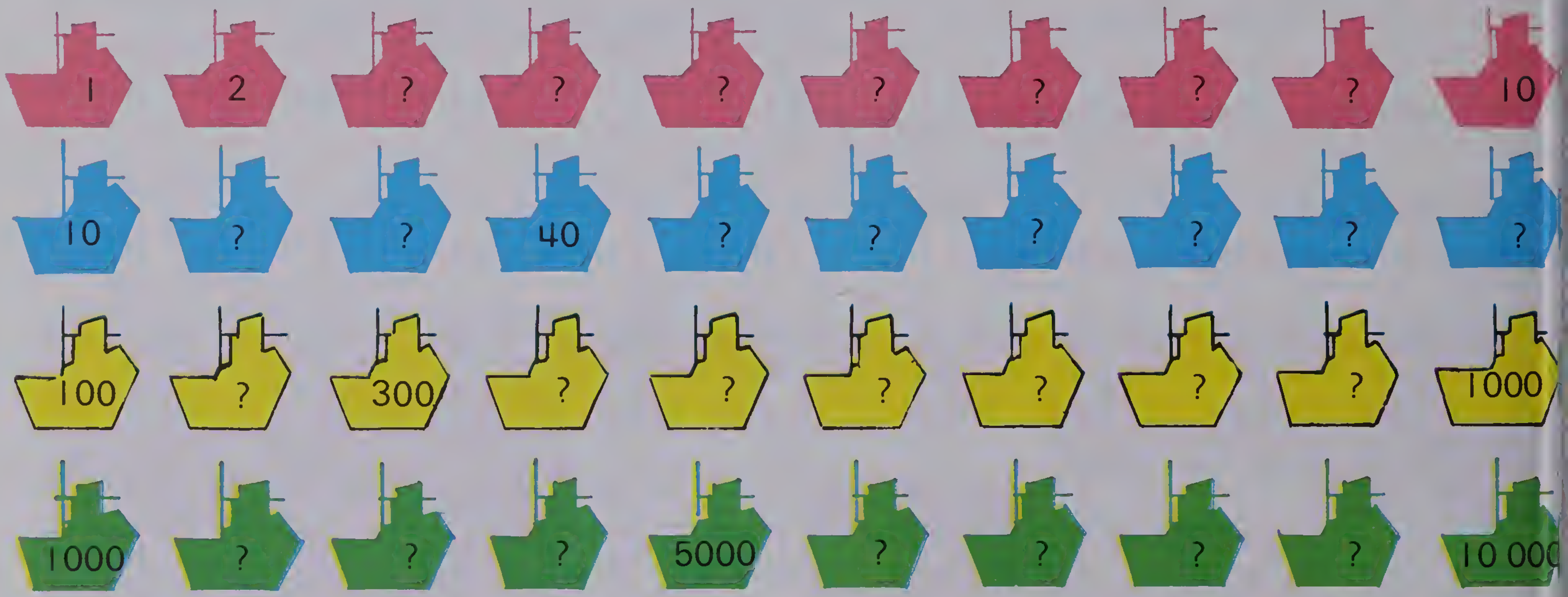


In Action

1. Exchange 10 for 1. Complete the chart in your notebook.

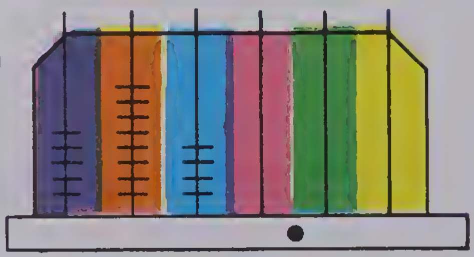
		? dime	10 pennies
	? $1 bill	10 dimes	
? $10 bill	10 $1 bills		
1 $10 bill		? dimes	

2. Complete the patterns.

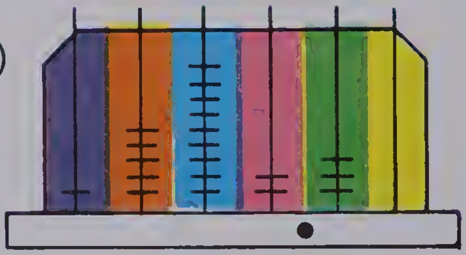


3. What is the number?

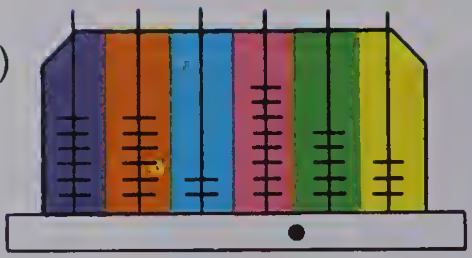
a)



b)



c)

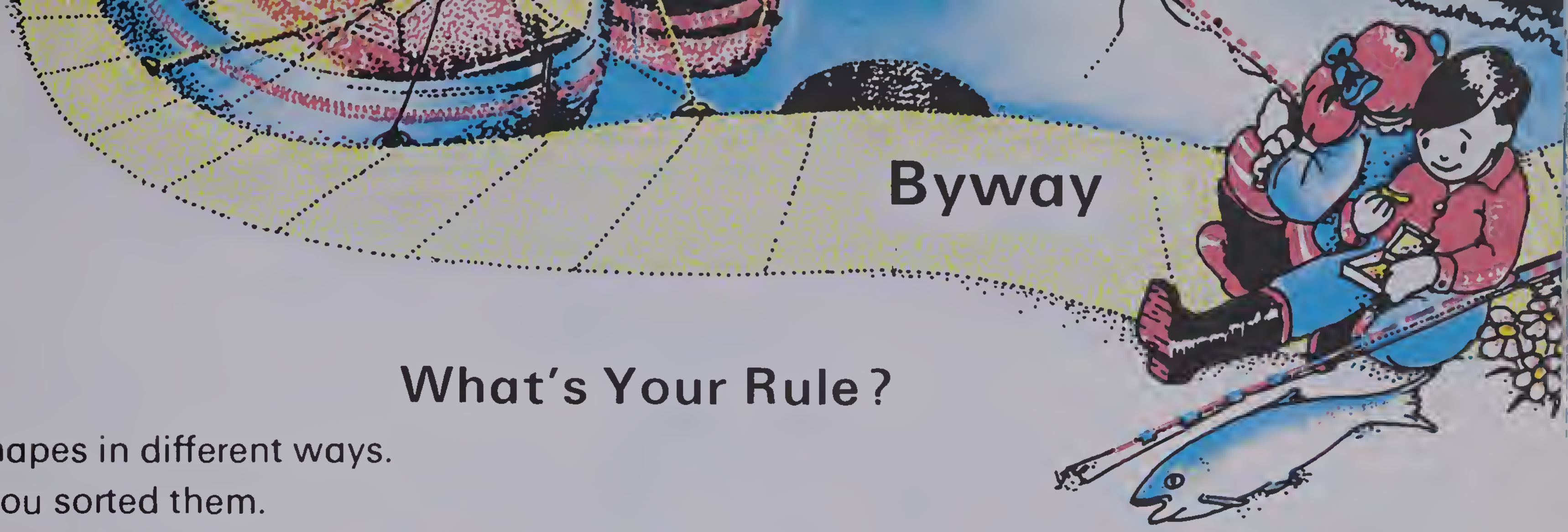


4. Draw pictures like the ones in Question 3 to show the numbers.

a) 7300
b) 4280
c) 3485.1
d) 1576.41

5. What is the number?

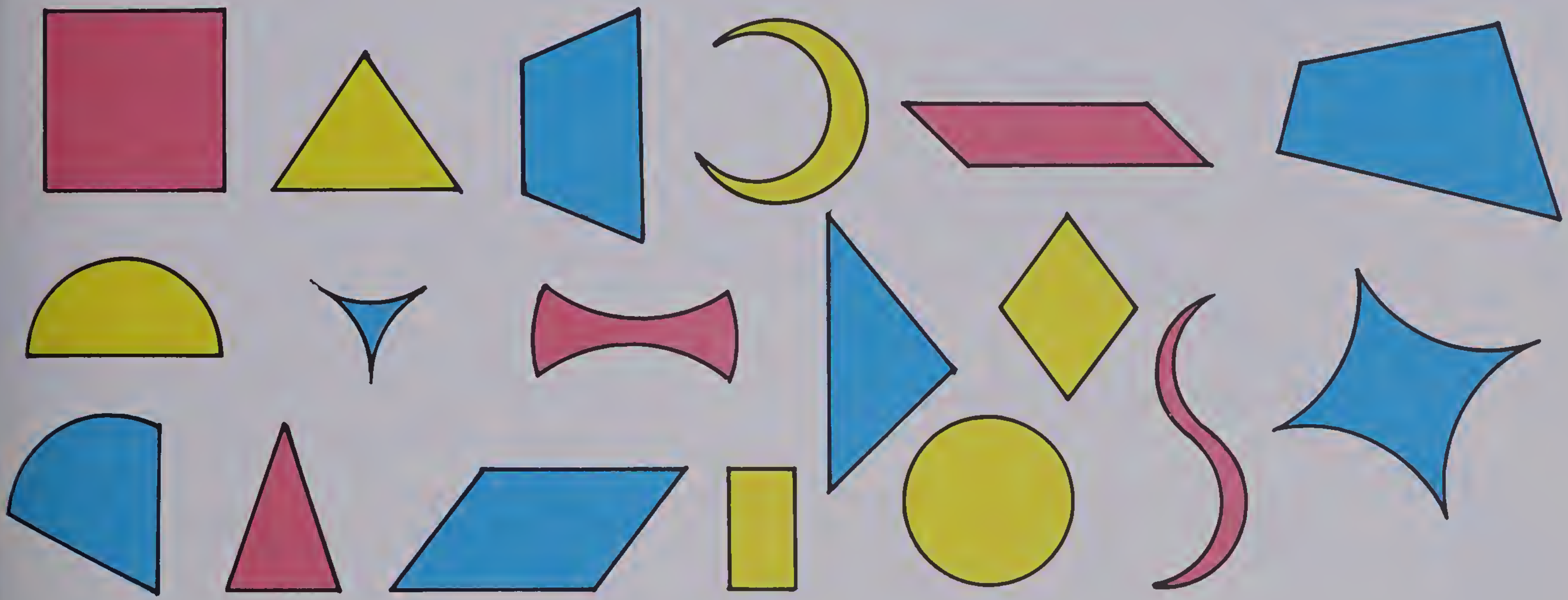
a) 4000 + 200 + 30 + 6
b) 3000 + 100 + 50 + 7 + 0.2
c) 5000 + 400 + 20 + 3 + 0.1 + 0.06
d) 8000 + 900 + 70 + 2 + 0.04



Byway

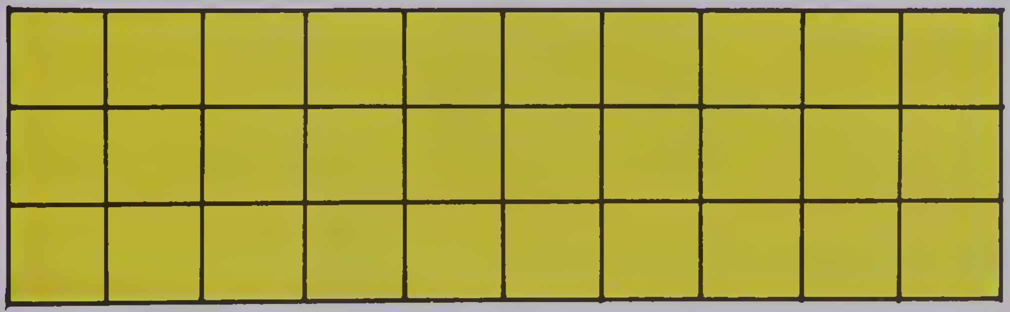
What's Your Rule?

Sort the shapes in different ways.
Tell how you sorted them.



Plotting

Draw a chart like this
in your notebook.

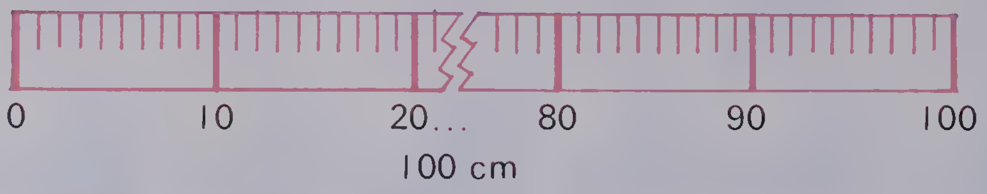


Write the numeral that is 1 more than 8 in the first row, fourth box.
Draw a star in the second row, sixth box.
Write the product of 8 and 7 in the third row, fifth column.
Draw a circle in the second row, tenth box.
Write the numeral for 2000 + 400 + 50 + 7 in the first row, seventh box.
Draw a triangle in the third row, second column.
Write the sum of 0.8 and 0.5 in the second row, ninth column.

Numbers and Measurements

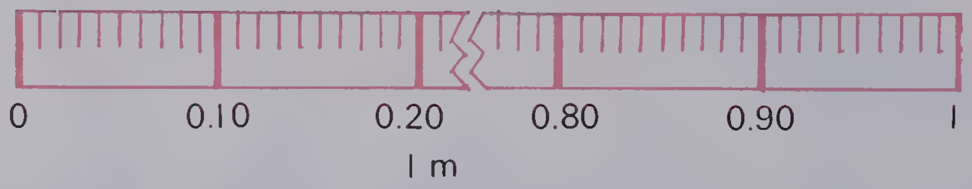
Look at a metre stick.
It is marked in centimetres.
How many centimetres are in 1 m?

100 cm = 1 m


0
10
20...
80
90
100
100 cm

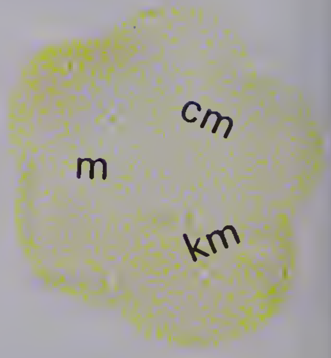
If we use 1 m to show 1, then 1 cm shows 0.01.

1 cm = 0.01 m


0
0.10
0.20
0.80
0.90
1
1 m

Complete.

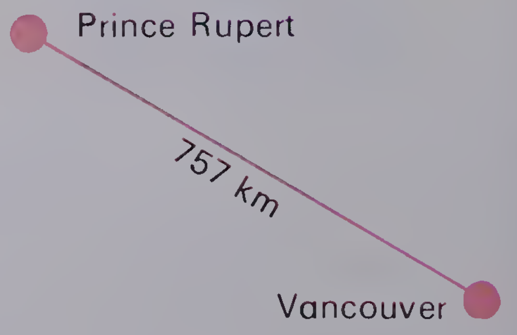
100 cm = ? m
? cm = 2 m
500 cm = ? m
1 cm = ? m
5 cm = ? m
? cm = 0.1 m
? cm = 0.15 m
50 cm = ? m



1000 metre sticks placed end-to-end make 1 kilometre.

1000 m = 1 km

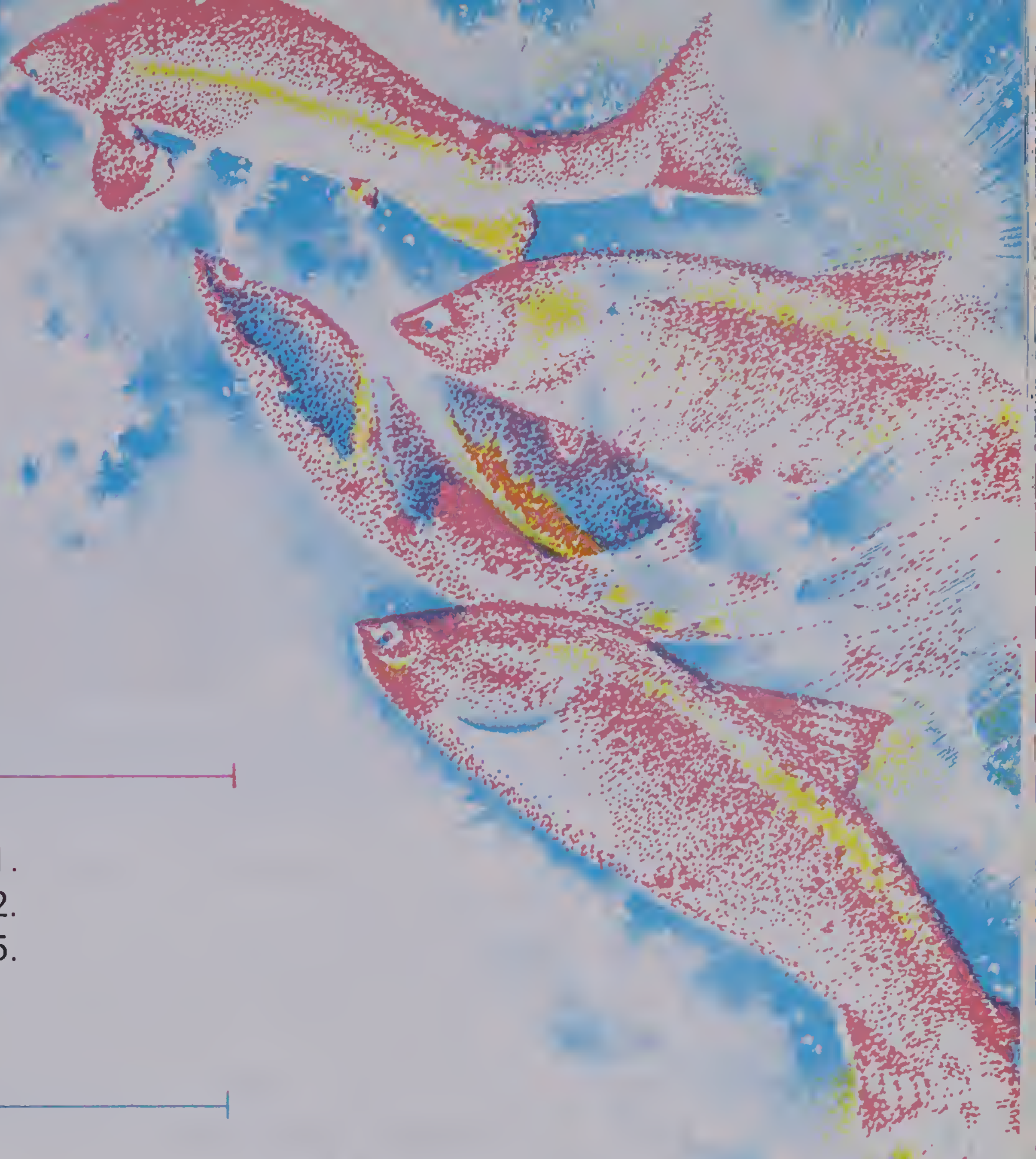
We use kilometres to measure long distances.
The distances between cities are measured in kilometres.


Prince Rupert
757 km
Vancouver

Complete.

1000 m = ? km
? m = 2 km
5000 m = ? km
10 000 m = ? km
2000 m = ? km
? m = 7 km
6000 m = ? km
? m = 9 km

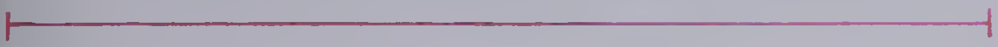
In Action



1. Complete.

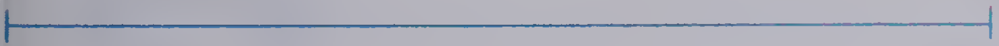
? cm = 1 m
500 cm = ? m
? cm = 10 m
? m = 1 km
2000 m = ? km
? m = 5 km

2. Let this line segment show 1.



a) Draw a line segment to show 0.1.
b) Draw a line segment to show 0.2.
c) Draw a line segment to show 0.5.

3. Let this line segment show 0.1.

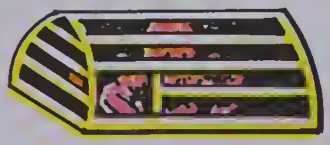


a) Draw a line segment to show 0.01.
b) Draw a line segment to show 0.04.
c) Draw a line segment to show 0.06.

4. A fishing boat is 6 m long.
How many centimetres long is the boat?

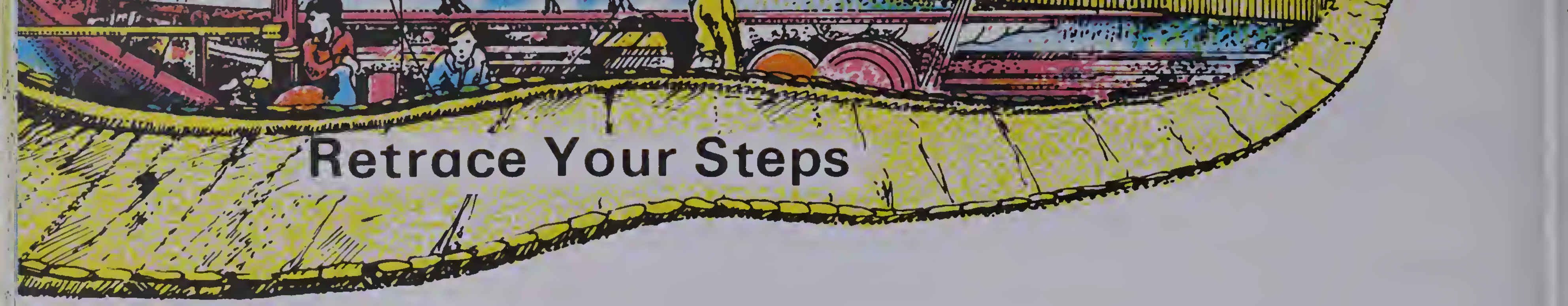
5. A buoy is 400 cm high.
How many metres high is the buoy?

6. A codfish is 80 cm long.
How many metres long is the fish?



7. A lobster trap is 0.75 m long.
How many centimetres long is the trap?

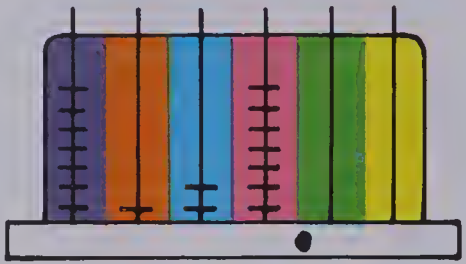
8. Find the length of your classroom in centimetres.



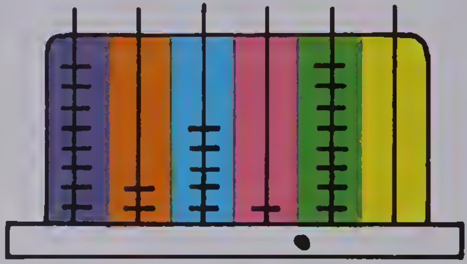
Retrace Your Steps

1. Write the numeral.

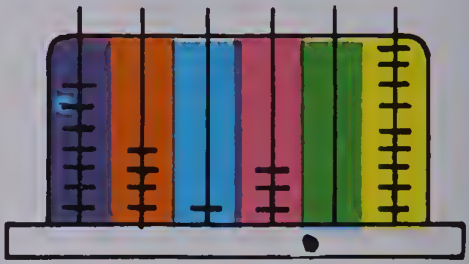
a)



b)

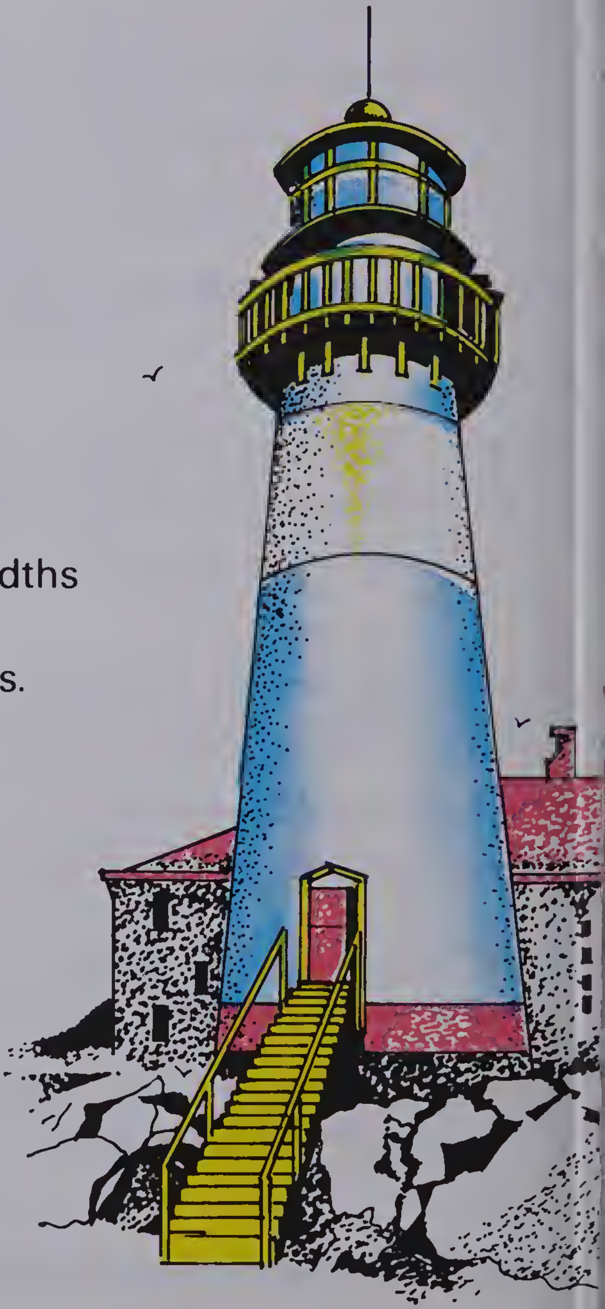


c)



2. Write the numeral.

a) 1000 + 600 + 70 + 4
b) 6000 + 800 + 40 + 5 + 0.7
c) 8000 + 900 + 60 + 8 + 0.9 + 0.07
d) 9000 + 800 + 60 + 0.3 + 0.06
e) 3000 + 40 + 5 + 0.2 + 0.01
f) 5000 + 700 + 90 + 2 + 0.1 + 0.04
g) 4 thousands, 5 hundreds, 3 tens, and 9
h) 9 thousands, 8 tens, 2, and 5 tenths
i) 2 thousands, 7 hundreds, 1, 7 tenths, and 8 hundredths
j) 8 thousands, 9 hundreds, 1 ten, 4, 6 tenths, and 9 hundredths

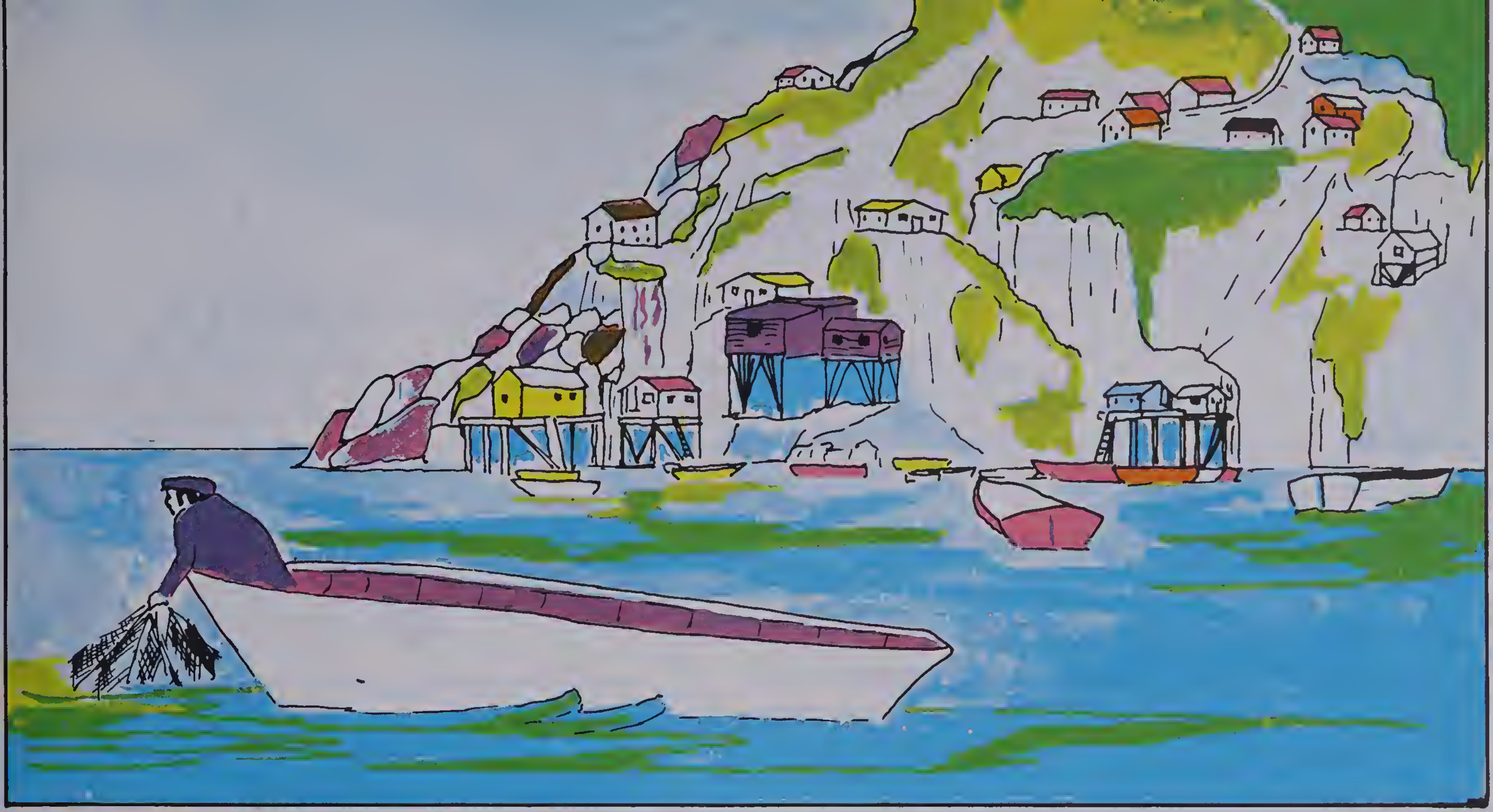


3. Use coloured cubes to show the numbers. Write the numerals.

a) 5 purple, 3 orange, 8 blue, 6 red
b) 1 purple, 8 orange, 5 blue, 1 red, 9 green
c) 6 purple, 7 orange, 8 blue, 3 red, 2 green, 5 yellow
d) 9 purple, 9 orange, 9 red, 4 green, 7 yellow
e) 7 purple, 6 orange, 9 blue, 8 green, 2 yellow

4. A decagon has a perimeter of 20 cm.
What is its perimeter in metres?

5. A pentagon has a perimeter of 0.5 m.
What is its perimeter in centimetres?



A Newfoundland Fishing Village

1. Every day, the fishing family goes out to sea to empty their fishing nets.
   Their boat, a long-liner, is 13.7 m long and 3.65 m wide.
   a) How many centimetres long is the long-liner?
   b) How many centimetres wide is the boat?

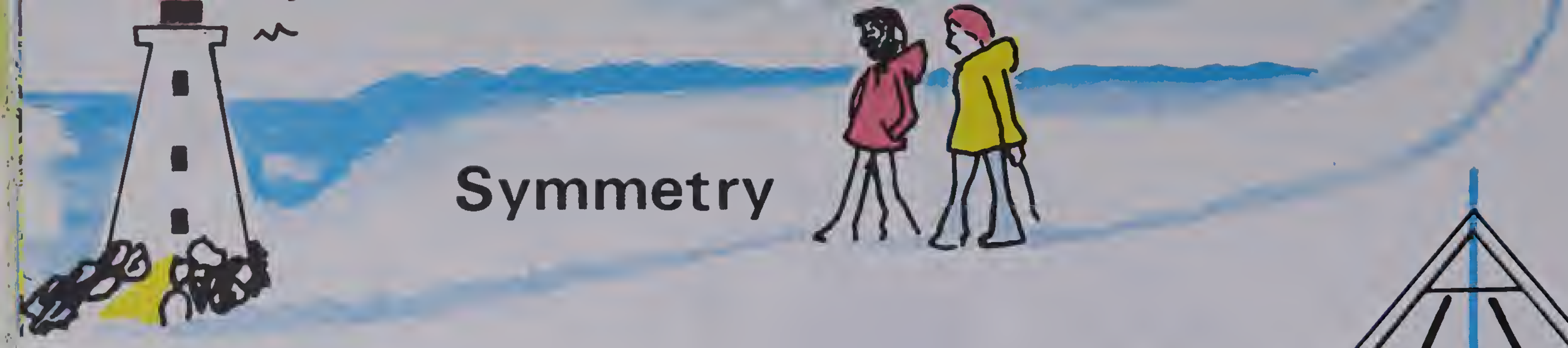
2. The family fishes with gill nets.
   The nets are 3 km long altogether.
   How many metres of netting does the family have?

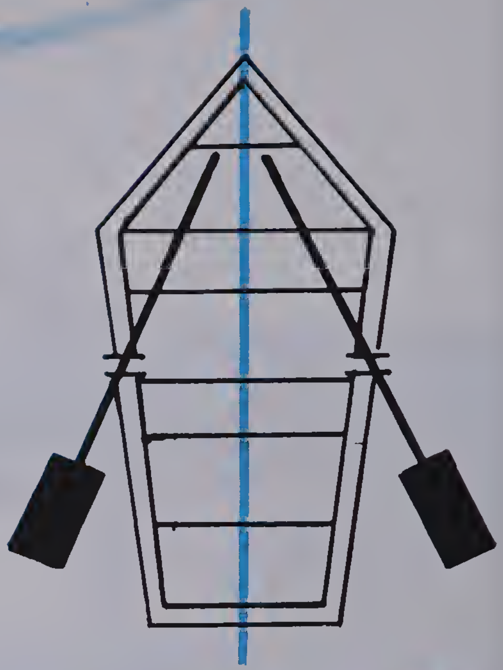
3. Most fish have a mass between 1.8 kg and 4.5 kg.
   What is the difference in mass?

4. Some fish have a mass as great as 13.5 kg.
   How much greater is that than the mass of a 1.8 kg fish?

5. The family's nets catch about 2000 kg of fish each day.
   The fish are kept in 50 kg lots until a fish company comes to buy them.
   a) How many lots would 100 kg of fish make?
   b) How many lots would 200 kg of fish make?
   c) About how many 50 kg lots of fish can the family make each day?

Symmetry

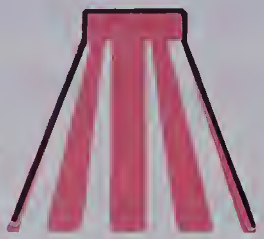


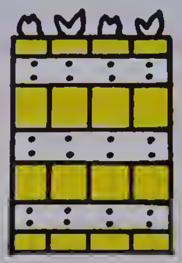


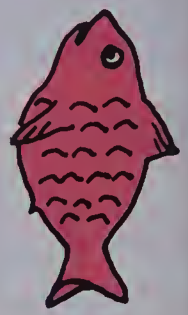
The rowboat is the same on both sides of the blue line.
It is **symmetrical**.
The blue line is the **line of symmetry**.

Place a mirror along the blue line.
Do you see a whole rowboat in the mirror?
A mirror can help you check whether something is symmetrical.

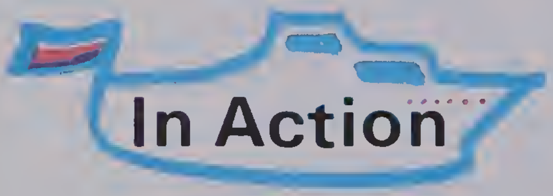
Which of these are symmetrical?
Draw a line through the middle of each object.
Check your answers using a mirror.







In Action

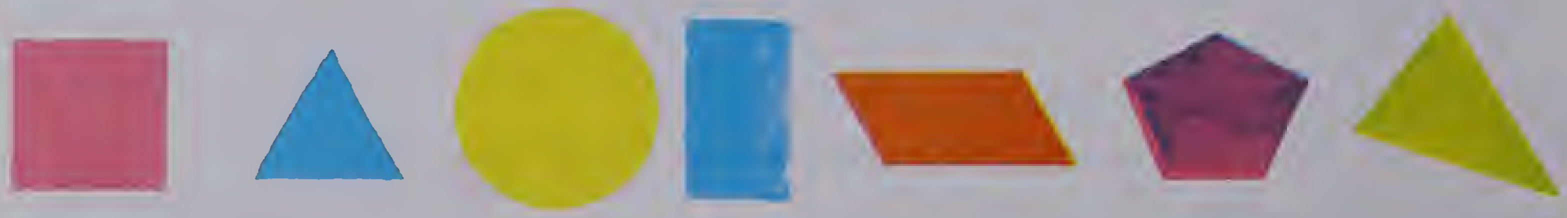


1. a) Which letters are symmetrical?

ABCDEFGH

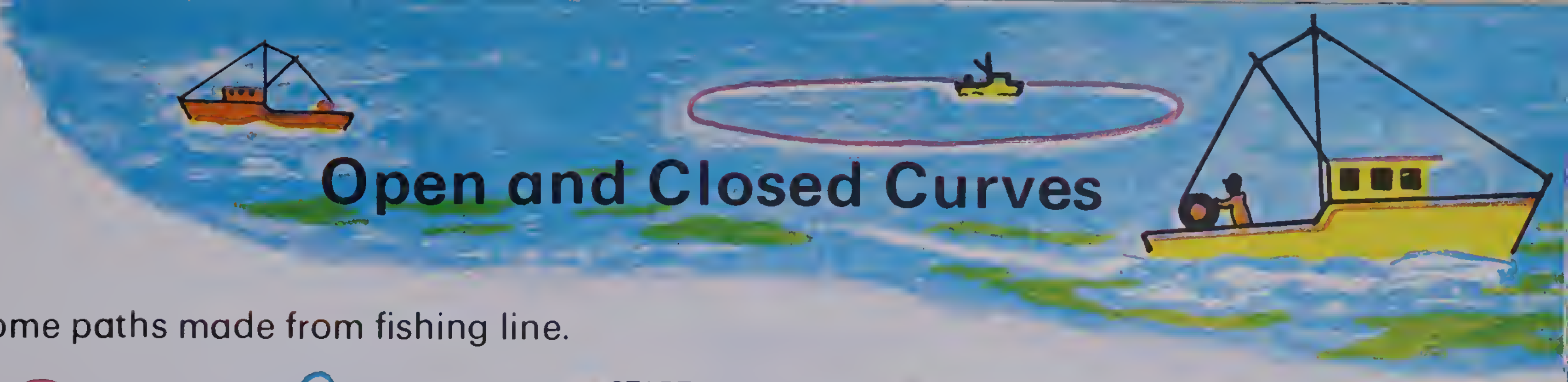
b) Find other symmetrical letters.

2. Which shapes are symmetrical?



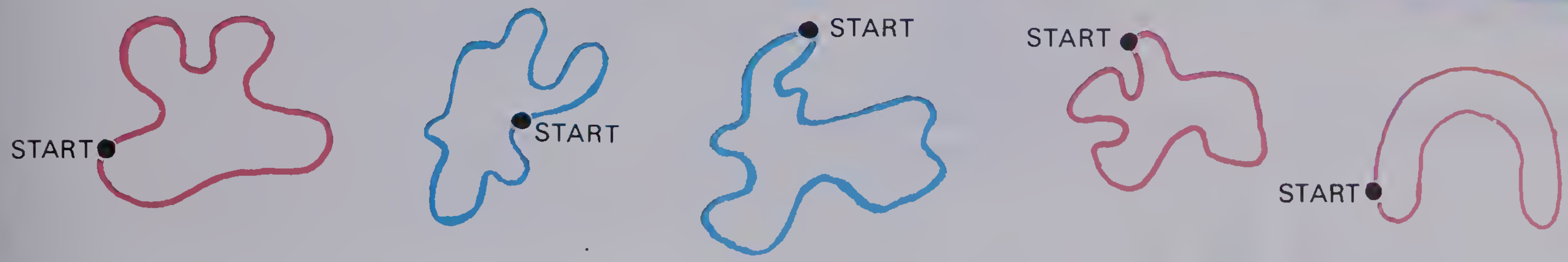
Trace the symmetrical shapes and draw a line of symmetry.

3. Find symmetrical objects in your classroom.



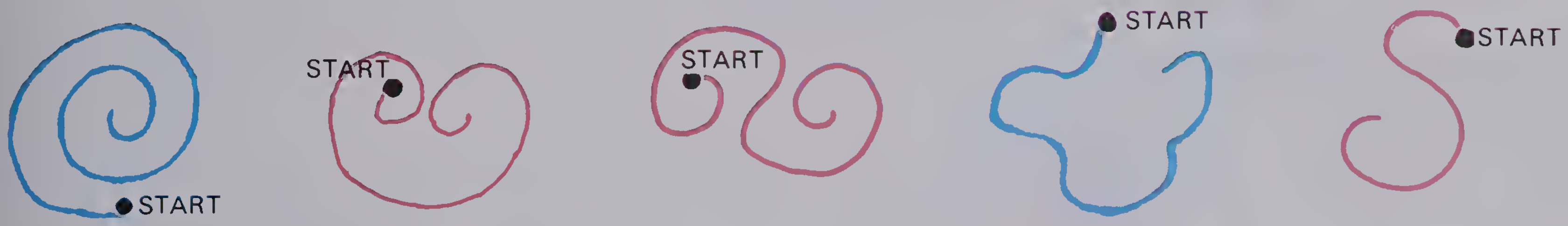
Open and Closed Curves

Here are some paths made from fishing line.



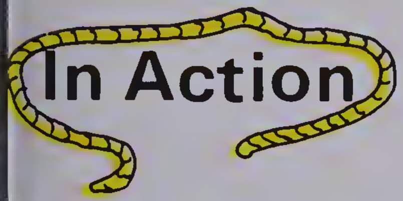
Trace around each path with your finger.
What do you discover?
These paths are called **closed curves.**

Here are some more paths.



What do you discover about these paths?
These paths are called **open curves**

Draw some open and closed curves.
Which ones are open? Which ones are closed?
Label each one **open** or **closed.**

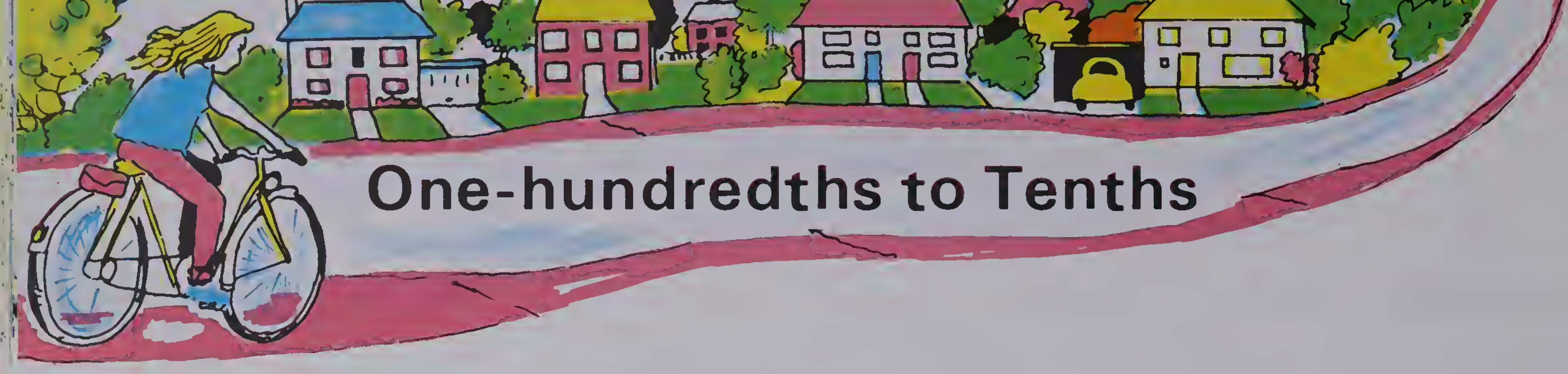


In Action

1. Which numerals are closed curves? Which numerals are open curves?

0 1 2 3 5 7 8

2. Work with a partner.
Make a path with a string or metre tape.
Your partner tells whether you have made a closed curve or an open curve.
He tells the length of the path.
Your partner makes the next path.



One-hundredths to Tenths

Adding decimals is like adding ordinary numbers.
We can use coloured columns like an abacus to show the exchange.

Add.	7.15 =	7	1	5
	1.68 =	1	6	8
		8	7	13

Exchange 10 hundredths for 1 tenth.

8.83 =	8	8	3

You can think this exchange.
It's much faster!

Add.
7.15
1.68
8.83

Think
13
7, 8
8

In Action

1. Add. Use coloured columns.

a)	b)	c)	d)	e)	f)
0.36	3.52	0.44	2.03	6.41	1.56
0.27	0.19	5.38	4.27	2.09	3.15

2. Add. Think the exchanges.

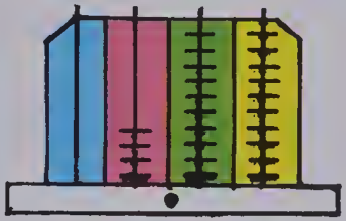
a)	b)	c)	d)	e)	f)
0.24	8.37	0.53	6.06	4.19	3.43
0.68	0.44	9.29	2.75	1.75	5.38

3. Neil bought some parts for his 3-speed bicycle.
The rear-view mirror cost $2.38 and the horn cost $1.29.
How much did he spend on new parts?

MIDLAND
REMOVALS

Exchanging When You Need To

When we add, we exchange 10 for 1.
Start at the right end of the abacus.
Exchange 10 for 1.
What is the number?



Here are examples of the exchanges.

Add.	0.09 0.47 0.56	5.73 0.54 6.27	3.86 2.59 6.45
	Exchange 10 hundredths for 1 tenth.	Exchange 10 ? for 1.	Exchange 10 ? for 1 tenth and 10 tenths for ?

You can think these exchanges if you understand them.

Add. 0.69
4.58
5.27

Think
17
6, 12
5, 5

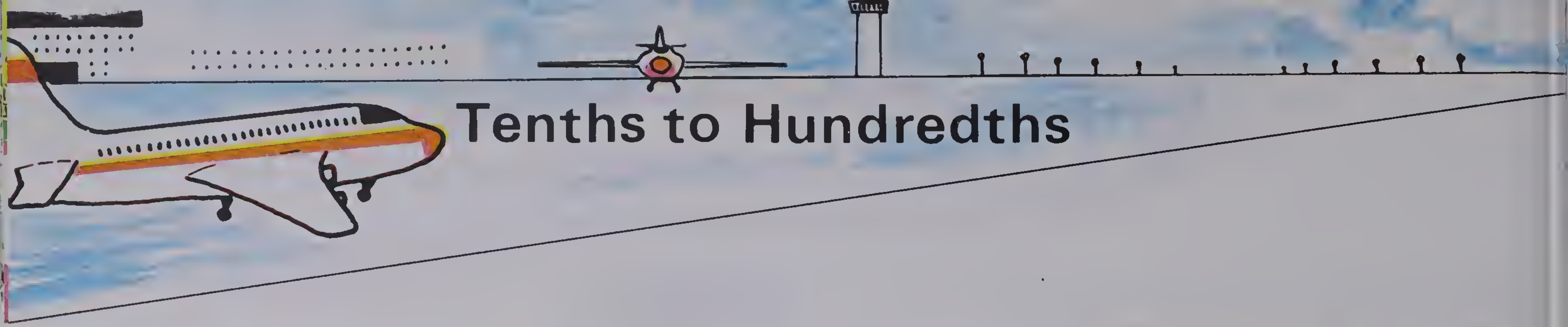
In Action

1. Add. Exchange 10 for 1 when you need to.

a) 0.37 0.26	c) 0.91 0.43	e) 0.38 4.27	g) 5.16 0.67	i) 6.82 1.49	k) 4.85 3.96	m) 0.57 1.83
b) 0.18 0.65	d) 0.62 0.84	f) 0.92 1.74	h) 7.85 0.93	j) 5.74 3.58	l) 2.93 1.37	n) 2.24 1.95

2. Sharon kept track of how far her family drove one weekend. They drove 52.8 km on Saturday and 46.7 km on Sunday. How long was Sharon's weekend trip?

3. A litre of gasoline costs 16.9¢. How much do 2 L of gasoline cost?



Tenths to Hundredths

Subtracting decimals is like subtracting ordinary numbers.
Let's use coloured columns first.

Subtract.

7.62	=	7	6	2
5.38	=	5	3	8

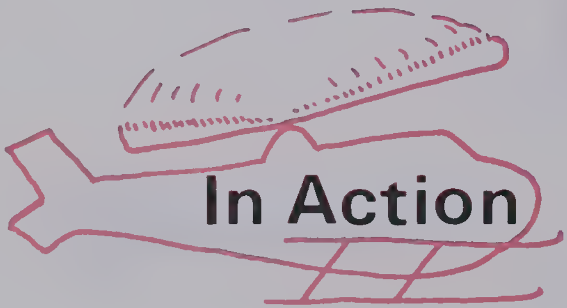
Exchange 1 tenth for 10 hundredths.

	7	5	12
	5	3	8
2.24	2	2	4

Save time by thinking the exchange! Subtract.

7.62
5.38
2.24

Think
12, 4
5, 2
2



In Action

1. Subtract. Use coloured columns.

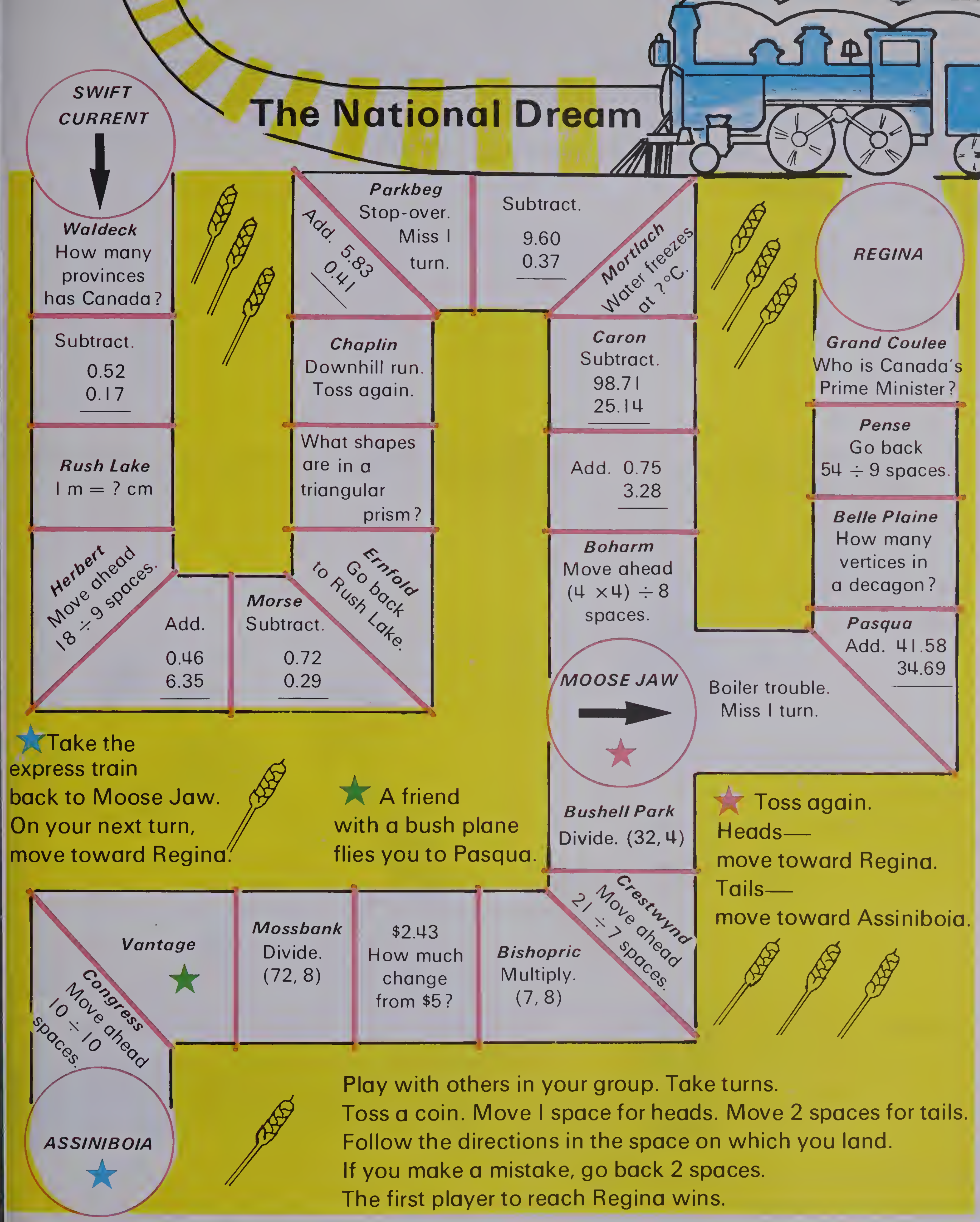
a)	b)	c)	d)	e)	f)
0.71	3.82	6.94	9.70	8.61	7.83
0.46	0.29	0.17	2.06	1.58	4.17

2. Subtract. Think the exchange.

a)	b)	c)	d)	e)	f)
0.42	5.91	8.72	9.83	7.91	6.84
0.39	0.66	0.15	7.25	3.47	2.36

3. Airfare from Vancouver to Calgary is $44.25.
Airfare from Vancouver to Regina is $68.50.
How much more does it cost to fly to Regina?

The National Dream



SWIFT CURRENT

Waldeck
How many provinces has Canada?

Subtract.
0.52
0.17

Rush Lake
1 m = ? cm

Herbert
Move ahead 18 ÷ 9 spaces.

Add.
0.46
6.35

Morse
Subtract.
0.72
0.29

Ernfold
Go back to Rush Lake.

What shapes are in a triangular prism?

Chaplin
Downhill run.
Toss again.

Add.
5.83
0.41

Parkbeg
Stop-over.
Miss 1 turn.

Subtract.
9.60
0.37

Mortlach
Water freezes at ?°C.

Caron
Subtract.
98.71
25.14

Add.
0.75
3.28

Boharm
Move ahead (4 × 4) ÷ 8 spaces.

MOOSE JAW
★

Boiler trouble.
Miss 1 turn.

Pasqua
Add.
41.58
34.69

Belle Plaine
How many vertices in a decagon?

Pense
Go back 54 ÷ 9 spaces.

Grand Coulee
Who is Canada's Prime Minister?

REGINA

Bushell Park
Divide. (32, 4)

Crestwynd
Move ahead 21 ÷ 7 spaces.

Bishopric
Multiply.
(7, 8)

$2.43
How much change from $5?

Mossbank
Divide.
(72, 8)

Vantage
★

Congress
Move ahead 10 ÷ 10 spaces.

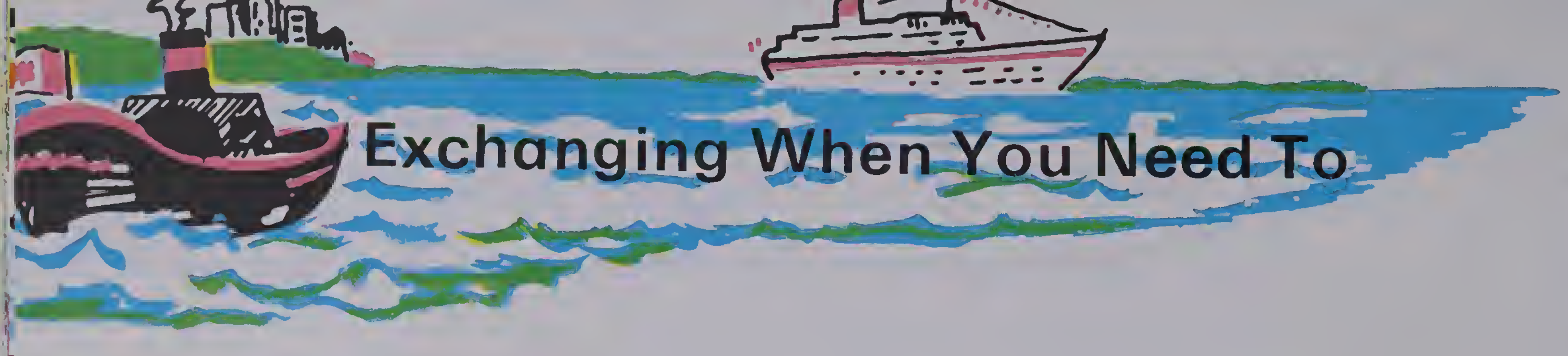
ASSINIBOIA
★

★ Take the express train back to Moose Jaw. On your next turn, move toward Regina.

★ A friend with a bush plane flies you to Pasqua.

★ Toss again.
Heads—
move toward Regina.
Tails—
move toward Assiniboia.

Play with others in your group. Take turns.
Toss a coin. Move 1 space for heads. Move 2 spaces for tails.
Follow the directions in the space on which you land.
If you make a mistake, go back 2 spaces.
The first player to reach Regina wins.



Exchanging When You Need To

When we subtract, we exchange 1 for 10.
Here are some examples of some exchanges.

Subtract.

$$\begin{array}{r}0.47\\0.19\\\hline 0.28\end{array}\qquad\qquad\begin{array}{r}5.63\\0.82\\\hline 4.81\end{array}\qquad\qquad\begin{array}{r}8.34\\2.75\\\hline 5.59\end{array}$$

Exchange 1 tenth for 10 hundredths.

Exchange 1 for 10?

Exchange 1 tenth for 10? and 1 for 10 tenths.

You can think these exchanges.
Subtract.

$$\begin{array}{r}5.71\\0.49\\\hline 5.22\end{array}$$

Think
11, 2
6, 2
5

Do you understand the exchange?

Try these.
Use an abacus if you need help.

Subtract.

$$\begin{array}{r}6.38\\2.91\\\hline \end{array}$$

Think
8, ?
?, 4
5, 3

Subtract.

$$\begin{array}{r}7.34\\5.96\\\hline \end{array}$$

Think
?, 8
?, 3
?, ?

Do you know your facts well enough?
Practise with a friend.

In Action

1. Subtract. Think the exchanges.

a) 0.62 0.18	c) 2.16 0.82	e) 9.60 0.25	g) 4.18 0.72	i) 9.61 3.57	k) 9.06 4.92
b) 0.93 0.57	d) 1.59 0.91	f) 7.83 0.94	h) 9.24 0.83	j) 8.72 4.15	l) 7.29 6.41

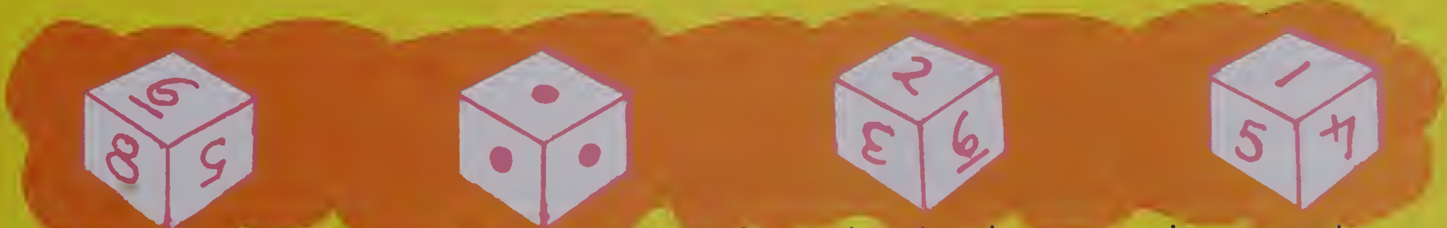
2. Subtract. Exchange 1 for 10 when you need to.

a) 0.71 0.06	c) 1.28 0.85	e) 8.31 1.44	g) 9.31 4.78	i) 7.24 1.69	k) 8.23 7.65
b) 0.92 0.57	d) 3.19 0.63	f) 7.32 3.95	h) 8.43 6.87	j) 9.10 2.56	l) 9.40 1.58

3. The 7 locks of the St. Lawrence Seaway change the level of the river.
In Montreal Harbour, the water level is 6.40 m above sea level.
In Lake Ontario, the water level is 74.98 m above sea level.
By how much must the locks raise the water level?

Deci-Sub

Use 4 wooden cubes for dice.
Write the numerals 1 to 6 on the first die, the numerals 2 to 7 on the second, and the numerals 4 to 9 on the third.
Put a dot on each face of the fourth die.
Roll the dice, and make a number with the numerals and decimal point.



Write the numeral. Then, roll the dice again and write the second numeral.
Be sure to write the larger numeral above the smaller one.
Your partner subtracts. Check his work.
Take turns rolling the dice.

STRATFORD SCENIC TOURS

Retrace Your Steps

1. Add.
Exchange 10 for 1 when you need to.

a) 0.18 0.74	c) 8.29 0.37	e) 7.46 0.72	g) 5.84 3.97	i) 6.29 1.81	k) 1.95 5.26
b) 0.46 0.92	d) 0.81 6.63	f) 0.57 8.15	h) 2.39 4.73	j) 3.64 4.58	l) 2.59 7.43

2. Subtract.
Exchange 1 for 10 when you need to.

a) 0.82 0.37	c) 0.71 0.14	e) 9.35 0.40	g) 9.12 3.64	i) 7.13 1.96	k) 9.20 0.49
b) 0.90 0.68	d) 8.06 0.42	f) 5.23 0.51	h) 6.35 4.78	j) 8.11 2.77	l) 6.54 2.86

3. The Stratford Scenic Tours Company has 2 bus rides.
The River Route bus goes along the river and stops to see the waterfowl and islands.
The Zoomobile bus goes to the zoo.

a) Which bus tour would you like to take?

b) The River Route tour costs $2.75 each.
The Zoomobile tour costs $3.35 each.
How much would it cost you and a friend to take the tour you chose?

c) Is your bus tour more or less expensive than the other tour?
By how much?

d) The River Route tour is 17.3 km long.
The Zoomobile tour is 11.8 km long.
Is your bus tour longer or shorter than the other tour?
By how much?

e) Suppose you took both bus tours.
How much would they cost you?
How many kilometres would you travel?

A Ride on the Métro/Subway

Pierre and Jeanne went to visit Monique and Georges on Saturday. They travelled by subway.

1. Pierre and Jeanne live near the McGill subway station.
   First they rode to Berri-de-Montigny.
   How many kilometres long was that trip?

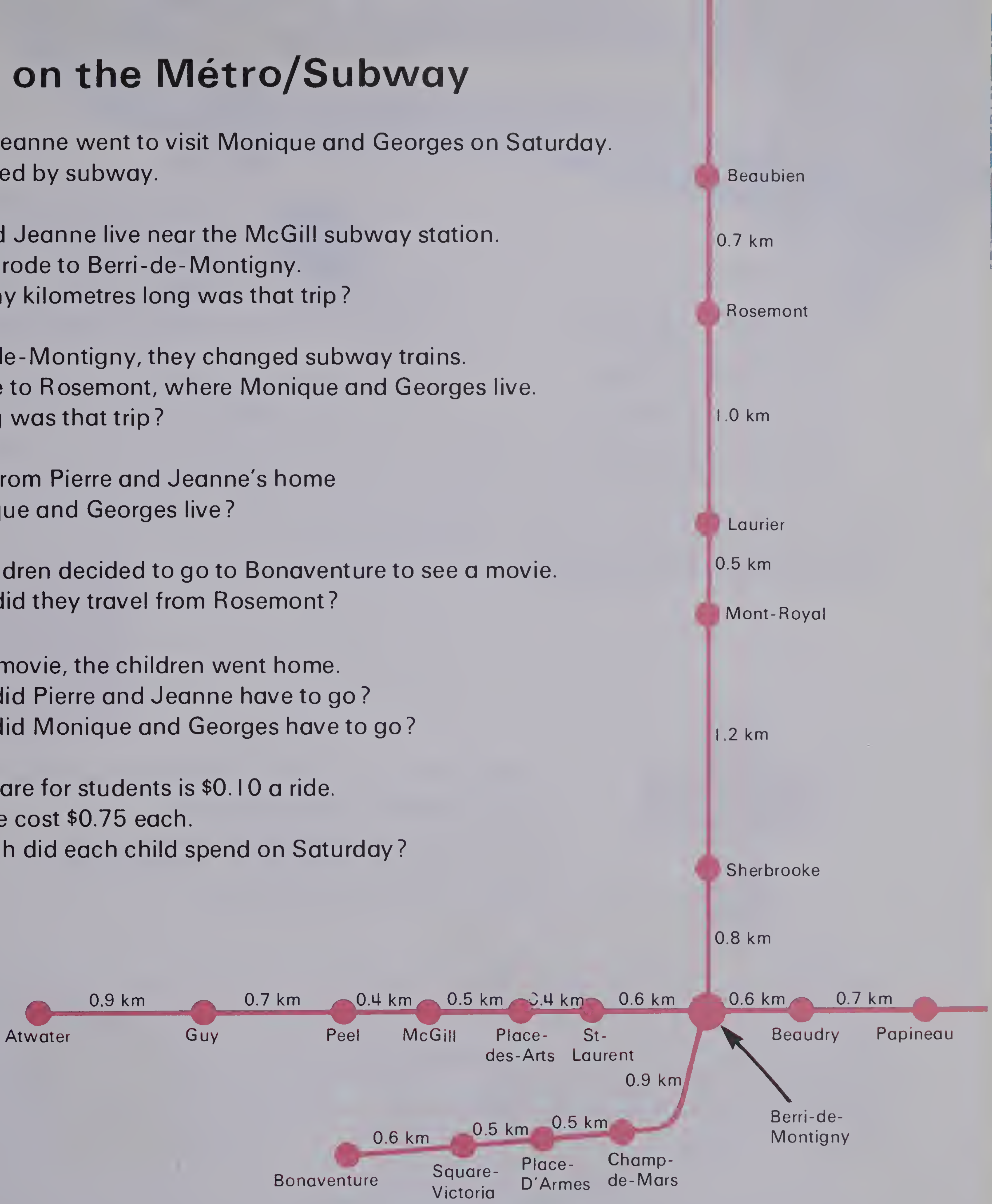
2. At Berri-de-Montigny, they changed subway trains.
   They rode to Rosemont, where Monique and Georges live.
   How long was that trip?

3. How far from Pierre and Jeanne's home
   do Monique and Georges live?

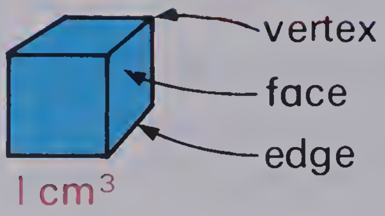
4. The 4 children decided to go to Bonaventure to see a movie.
   How far did they travel from Rosemont?

5. After the movie, the children went home.
   How far did Pierre and Jeanne have to go?
   How far did Monique and Georges have to go?

6. Subway fare for students is $0.10 a ride.
   The movie cost $0.75 each.
   How much did each child spend on Saturday?


Beaubien
0.7 km
Rosemont
1.0 km
Laurier
0.5 km
Mont-Royal
1.2 km
Sherbrooke
0.8 km
Atwater
0.9 km
Guy
0.7 km
Peel
0.4 km
McGill
0.5 km
Place-des-Arts
0.4 km
St-Laurent
0.6 km
0.6 km
Beaudry
0.7 km
Papineau
Berri-de-Montigny
0.9 km
Champ-de-Mars
0.5 km
Place-D'Armes
0.5 km
Square-Victoria
0.6 km
Bonaventure

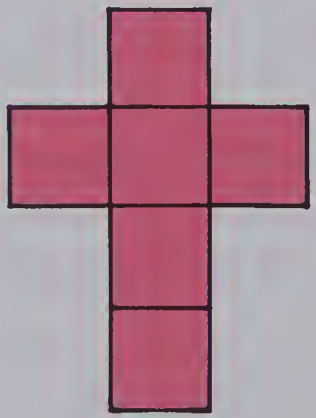
Explore the Cube



Examine a 1 cm cube.

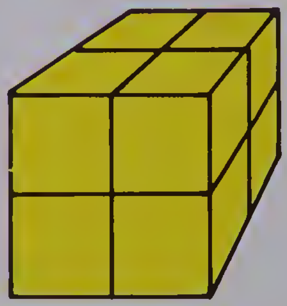
Tell
- the shape of each face,
- the number of faces,
- the number of vertices,
- the number of edges,
- the length of each edge,
- the area of each face.

The volume is one cubic centimetre. We write the volume as 1 cm^3.
The ^{3} in 1 cm^3 says you are making 3 measurements.
These are length, width, and height.

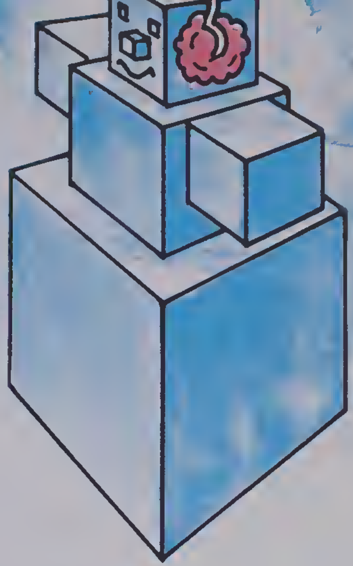


Imagine that you were to unfold the faces of the cube.
You would get a pattern like this.
Set the cube on the pattern.
By turning the cube, see how it fits the pattern.
What is the area of the pattern?

This cube is twice as long, twice as wide,
and twice as high as a 1 cm cube.
Build one of these cubes with 1 cm cubes that fit together.
How many 1 cm cubes did you need?
What is the volume of the larger cube?
This is a 2 cm cube.



Draw a pattern for the 2 cm cube on graph paper.
What is the area of each face? What is the area of the pattern?

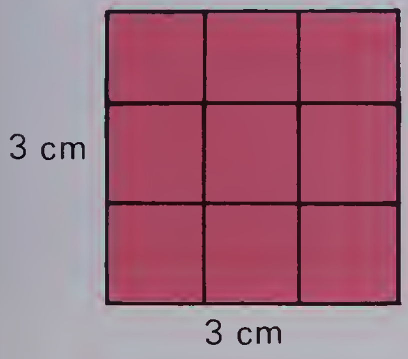


Fun with Cubes

1. Work with a partner.
Build something with 1 cm cubes.
It is easy to build with cubes that fit together.
Your partner counts the cubes to find the volume.
Take turns building things and finding volumes.

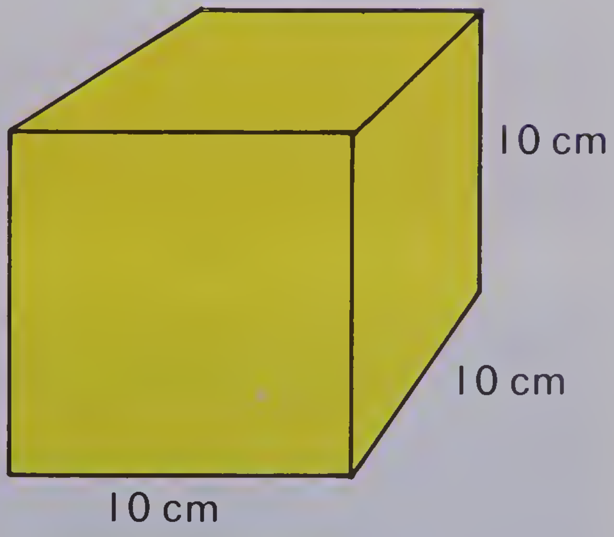
2. We often call the bottom face of a cube its **base.**
What shape is the base of a cube?
Draw a base for a cube on paper marked into 1 cm squares.
Your partner builds a cube on the base and finds the volume of the cube.
Take turns drawing bases.

3. What is the volume of a cube on this base?



For each base, tell the volume of the cube.
a) 1 cm^2 b) 4 cm^2 c) 16 cm^2

4. Think about a cube that is 10 cm by 10 cm by 10 cm.
How long is the base? How wide is the base?
What is the area of the base?
Do you need to draw the base on squared paper
and count the squares to find the area?
What is the volume of the cube?

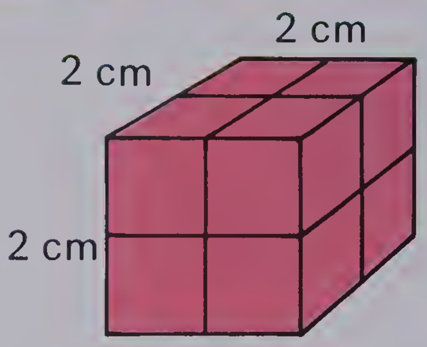


5. Make a cube that is 4 cm by 4 cm by 4 cm.
Draw a pattern for the cube on graph paper.
Cut out the pattern, fold it, and tape it together to make the cube.

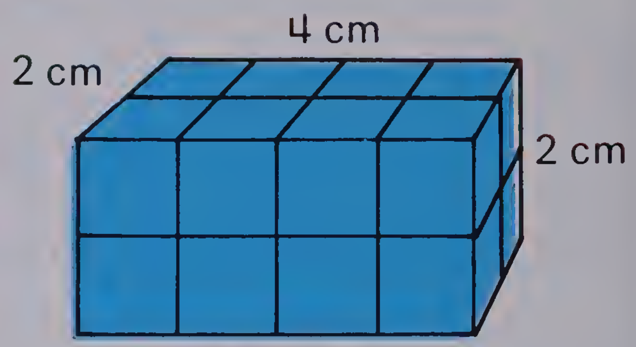
Explore the Rectangular Prism

What is special about a cube?

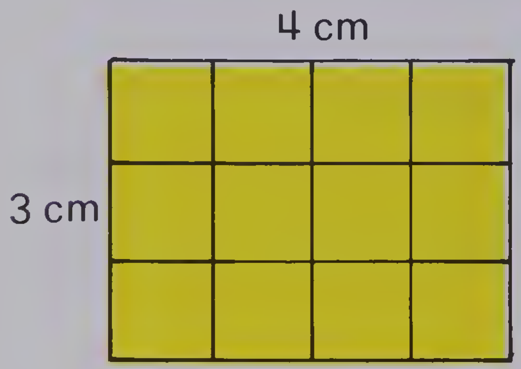
How is a rectangular prism different from a cube?



cube



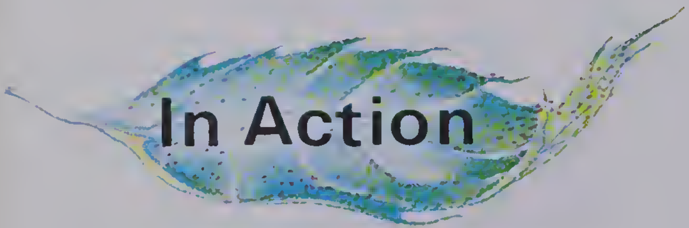
rectangular prism



rectangular base

Think about building layers of 1 cm cubes on this pattern.
Do you really need to build the rectangular prisms to tell the number of cubes?
For 1 layer, how many cubes are there?
For 2 layers, how many cubes?
For 3 layers, how many cubes?

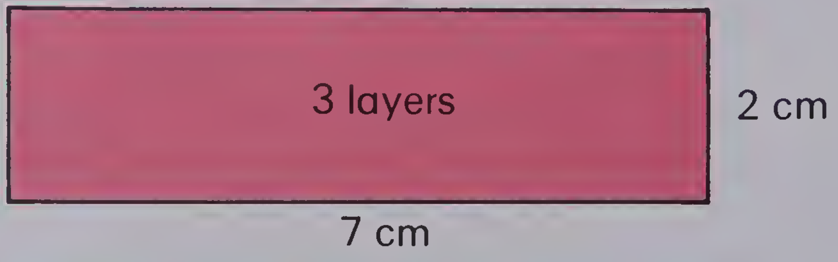
Remember, the number of 1 cm cubes tells the volume.



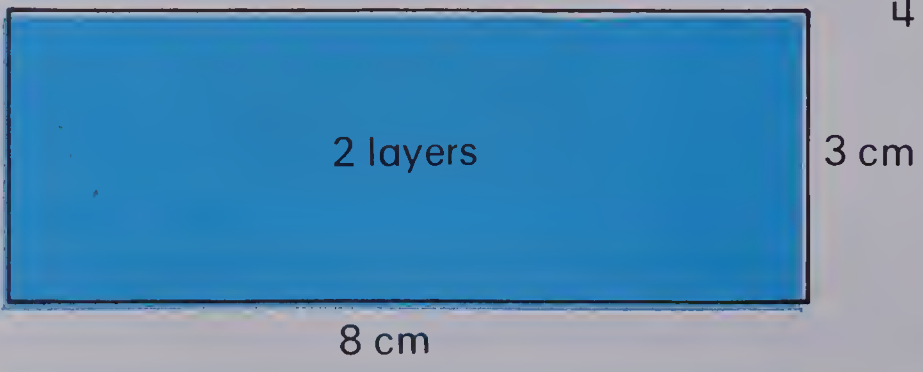
In Action

What is the volume of the rectangular prism on each base?

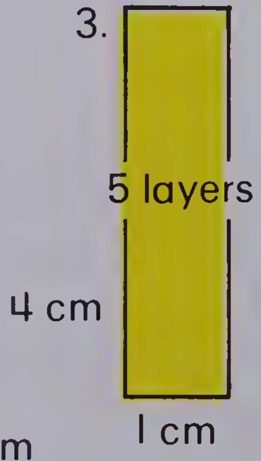
1.


3 layers
2 cm
7 cm

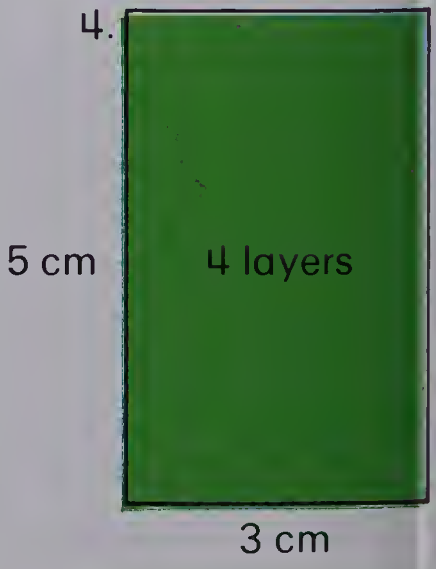
2.

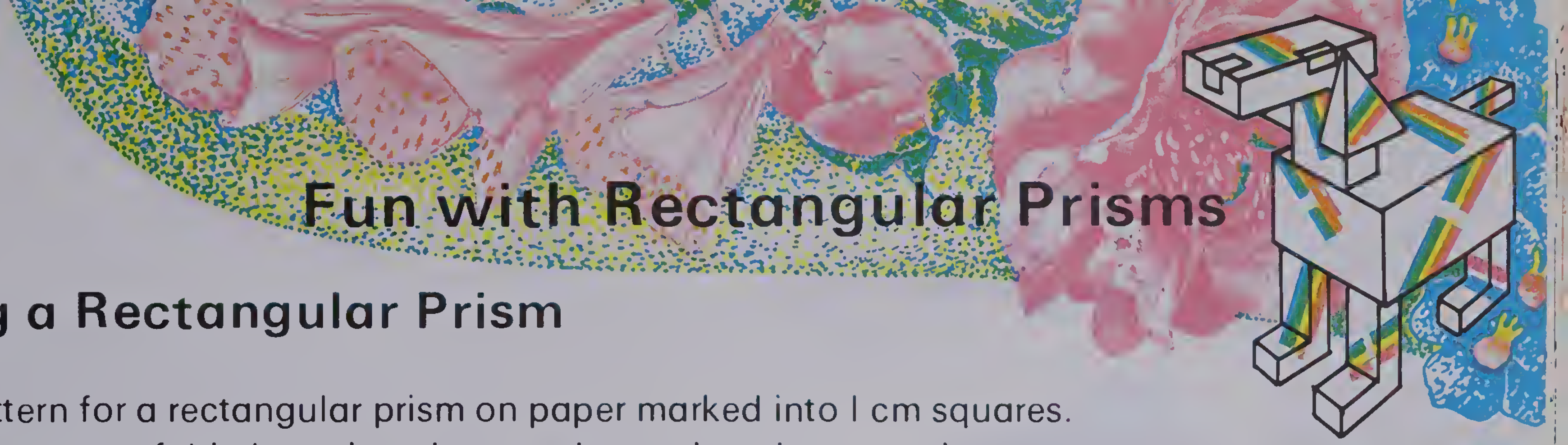

2 layers
3 cm
8 cm

3.


5 layers
4 cm
1 cm

4.

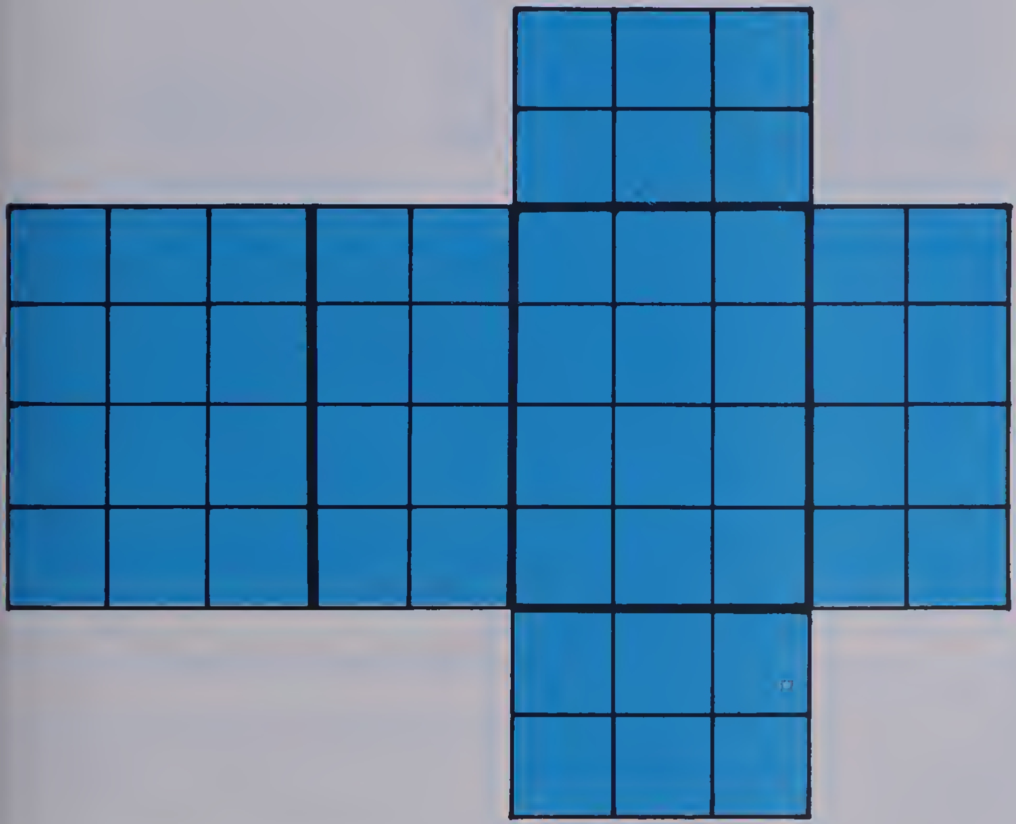

4 layers
5 cm
3 cm



Fun with Rectangular Prisms

Making a Rectangular Prism

Draw a pattern for a rectangular prism on paper marked into 1 cm squares. Cut out the pattern, fold along the edges, and tape the edges together to make a rectangular prism.



Here is a pattern for a rectangular prism.

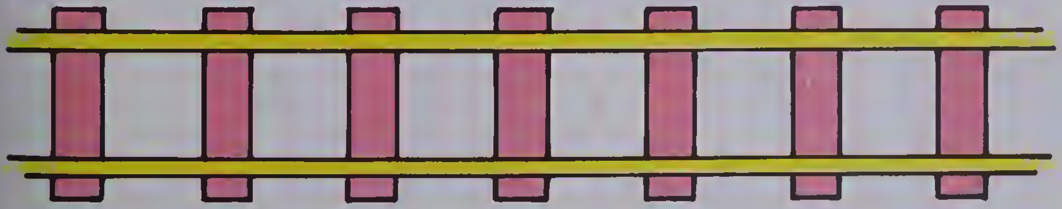
Give
- the length,
- the width,
- the height.

Not all of the faces have the same area.
Find the area of the faces.
What is the area of the pattern?

Find the volume of the rectangular prism.

Parallel Lines

Look at the lines in the railroad track.



Imagine that you drew the tracks much longer.
Which lines would never meet?
How far apart are the rails at the beginning of the track?
How far apart are they at the end of the track? The rails are **parallel lines**.
Parallel lines are always the same distance apart.
Examine a rectangular prism. Which lines are parallel?

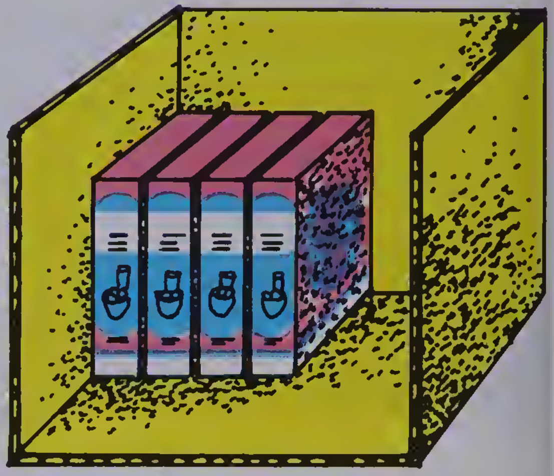
Byway

Packing Cartons

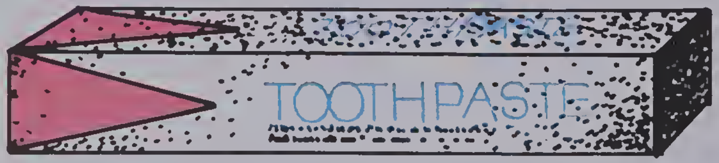
Make a collection of boxes of different sizes.
All of the boxes should be rectangular prisms.

1. Make a list of things that are packaged in rectangular prisms.

2. Large cartons, which are also rectangular prisms, are used to hold a number of small boxes. These fit into the large carton exactly.
   Find the number of boxes of your favourite cereal that are packaged in a large carton.
   How many boxes are in each layer?
   How many layers are there?
   Find
   - the length of the carton,
   - the width of the carton,
   - the height of the carton,
   - the length of the cereal box,
   - the width of the cereal box,
   - the height of the cereal box.



3. Give the length, width, and height of a carton for 10 tubes of toothpaste.
   Each tube of toothpaste is sold in a box which is a rectangular prism.

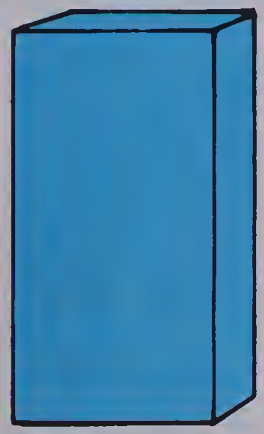


4. Design a carton for shipping 30 *mathways* books to schools.

Models

Examine the geometric models.
Which models do you know?
The names are at the bottom of the page.

a)



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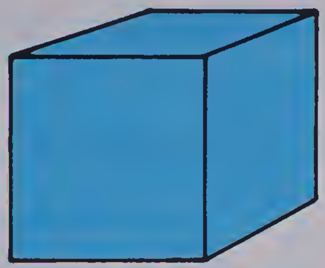
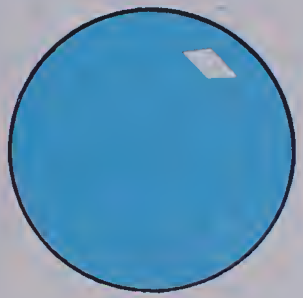
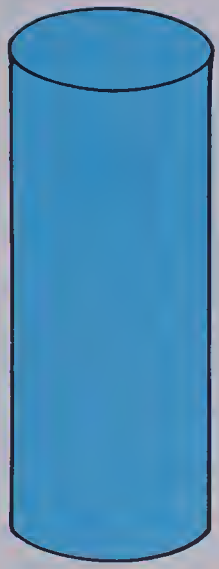


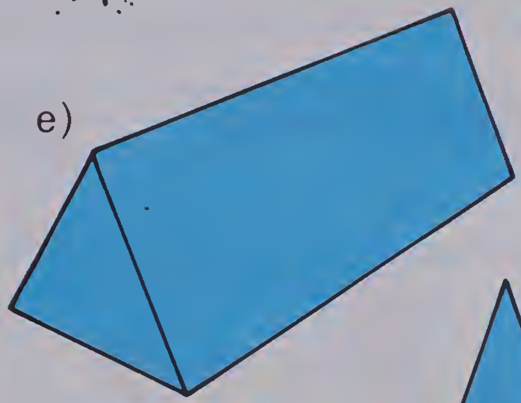
c)



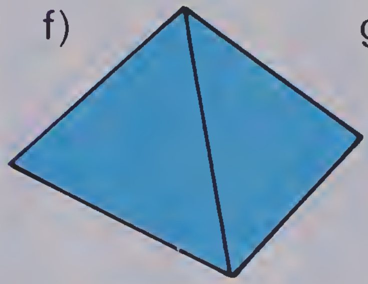
d)



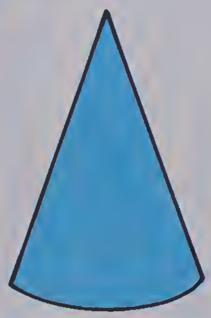
e)



f)

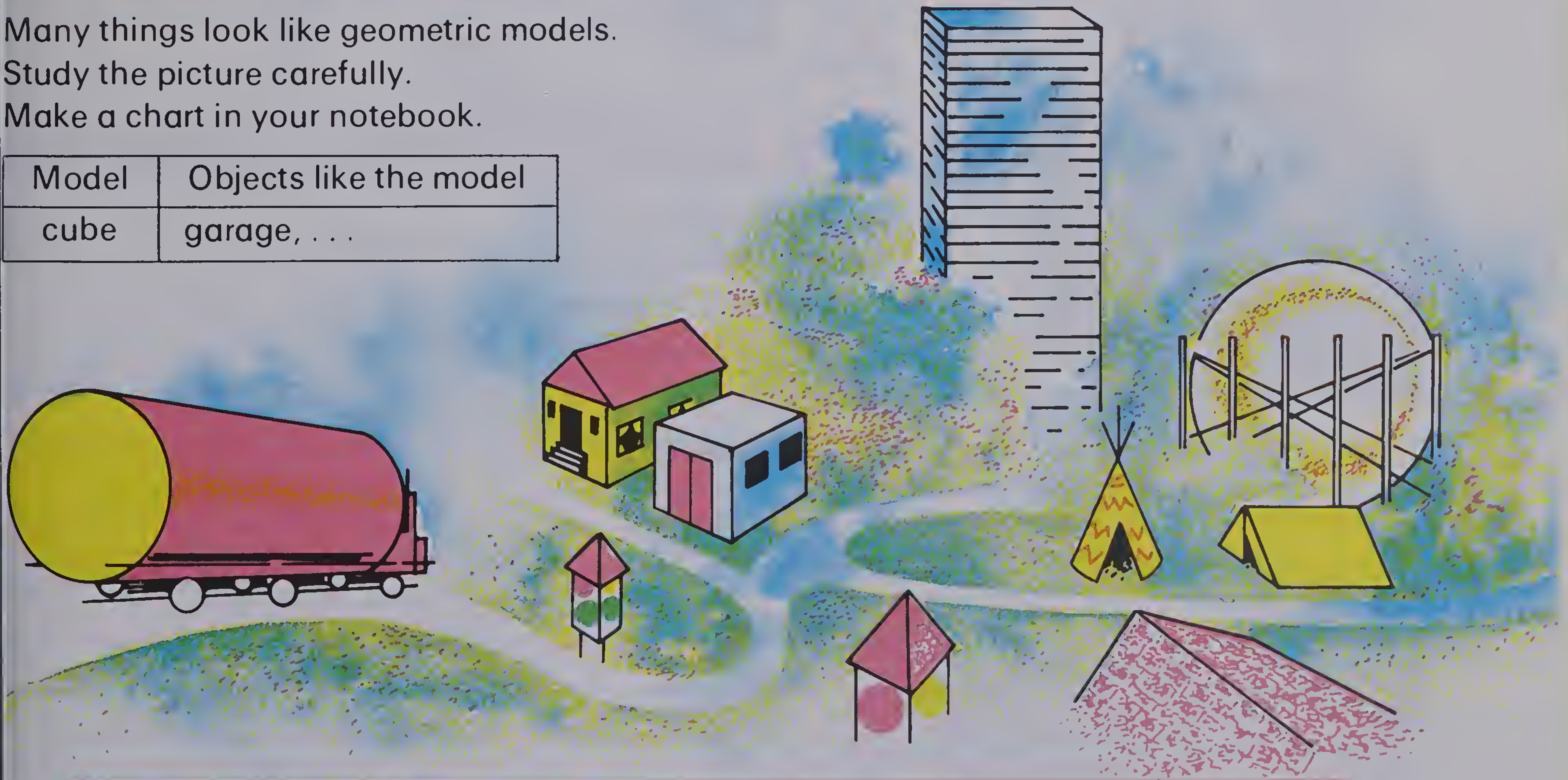


g)



Many things look like geometric models.
Study the picture carefully.
Make a chart in your notebook.

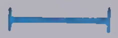
Model	Objects like the model
cube	garage, . . .



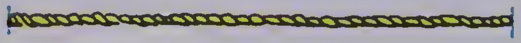
Answers: a) rectangular prism b) cube c) sphere d) cylinder e) triangular prism f) square pyramid g) cone

cm, cm^2, cm^3

We measure **length** with a unit like this.

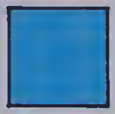


1 cm

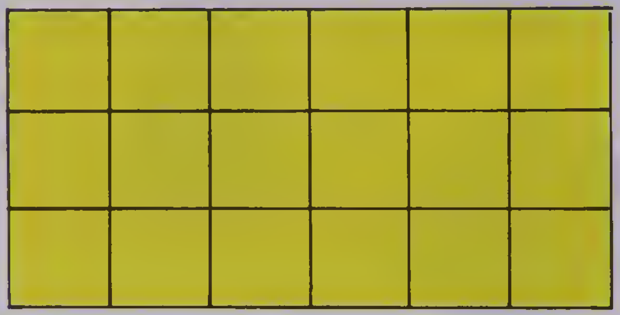


The length of the string is 5 cm.
We measure small lengths in centimetres.

We measure **area** with a unit like this.

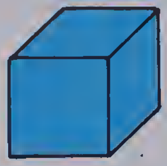


1 cm^2

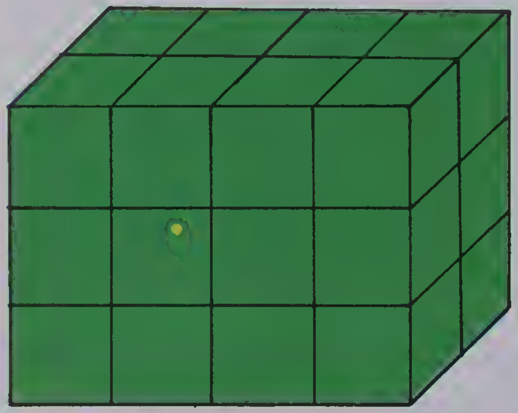


The area of the shape is 18 cm^2.
How long is the rectangle?
How wide is the rectangle?
We measure small areas in square centimetres.

We measure volume with a unit like this.



1 cm^3

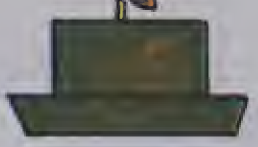


The volume of this box is 24 cm^3.
How long is the box?
How wide is the box?
How high is the box?
We measure small volumes in cubic centimetres.

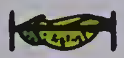
What kind of unit would you use for each measurement?
Complete the chart in your notebook.

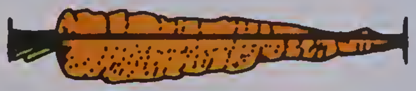
Measurement	Length (cm)	Area (cm^2)	Volume (cm^3)
flower stem	✓		
amount of earth in a box			
surface of this book			
your pace			
surface of a seed package			
space in a candy box			

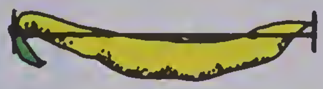
Length

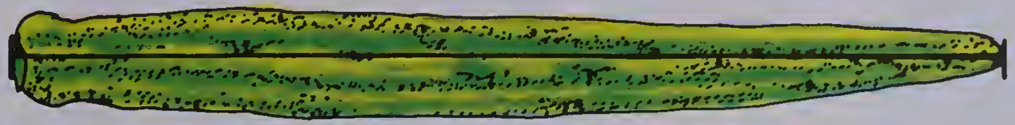


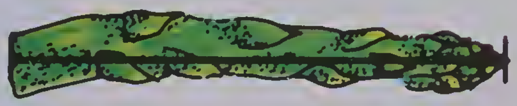
1. Guess the length, then measure.

a) 

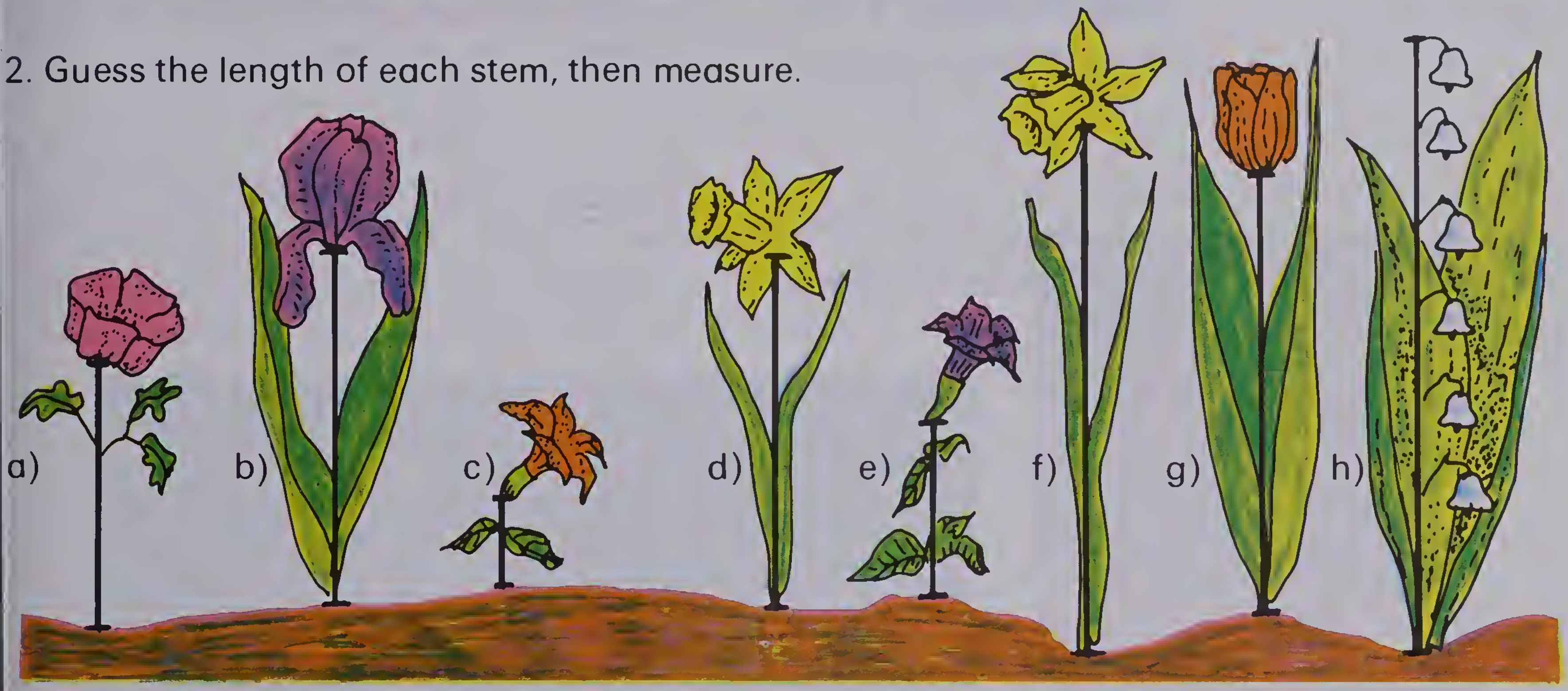
c) 

d) 

b) 

e) 

2. Guess the length of each stem, then measure.

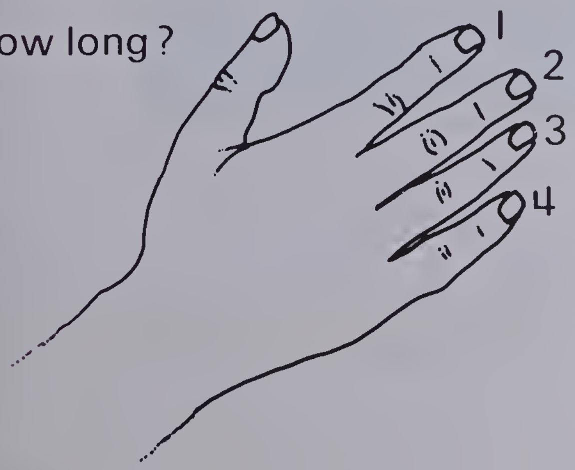


3. Turn your ruler upside down.

a) Draw a line segment that you think is 6 cm long.
Now draw one under it that is 6 cm long.
How close was your guess?

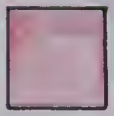
b) Repeat for 8 cm, 10 cm, 4 cm, and 12 cm.
Do just one line segment at a time.

4. How long?

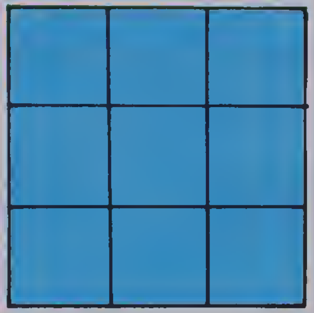


Finger	Guess	Measurement
1		
2		
3		
4		
thumb		

Area



1 cm²

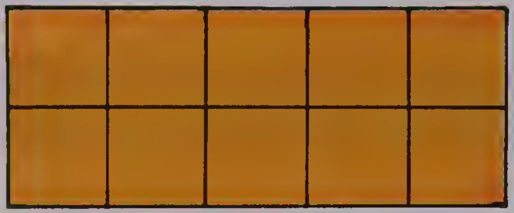


9 cm²

Area of the square shape

$= (3 \times 3)\ \text{cm}^2$

$= 9\ \text{cm}^2$



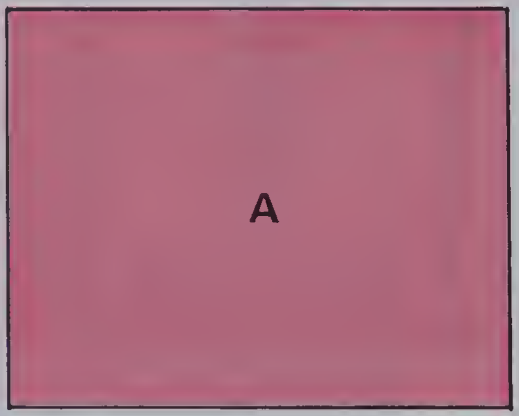
10 cm²

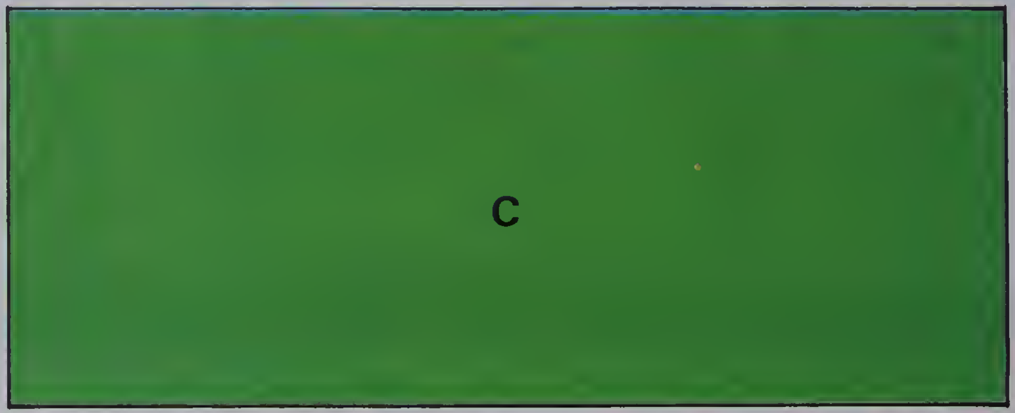
Area of the rectangular shape

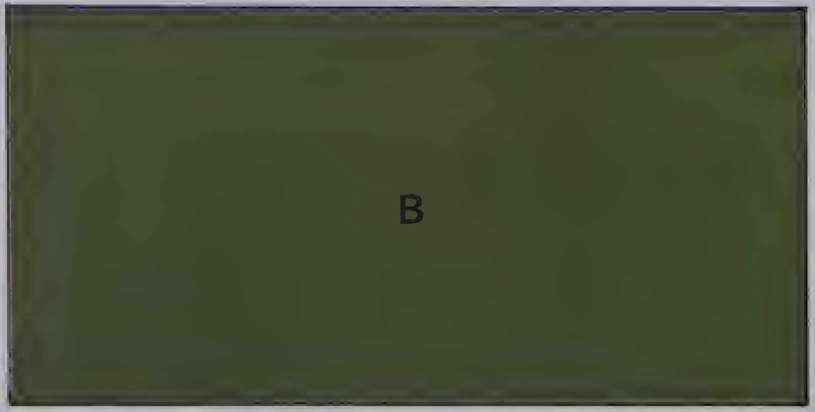
$= (5 \times 2)\ \text{cm}^2$

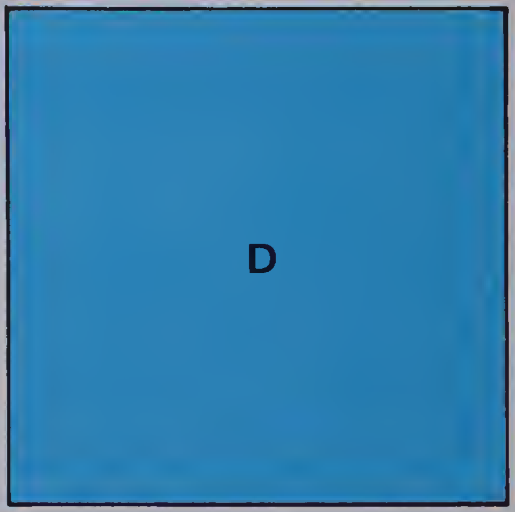
$= 10\ \text{cm}^2$

Guess the length and width of each shape. Find the area.
Measure the length and width of each shape. Find the area.
Make a chart like the one below.



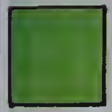




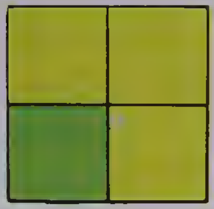


Shape	Guess			Measurement		
	Length	Width	Area	Length	Width	Area
A						

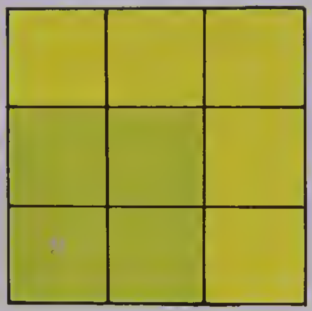
Area



1 cm^2



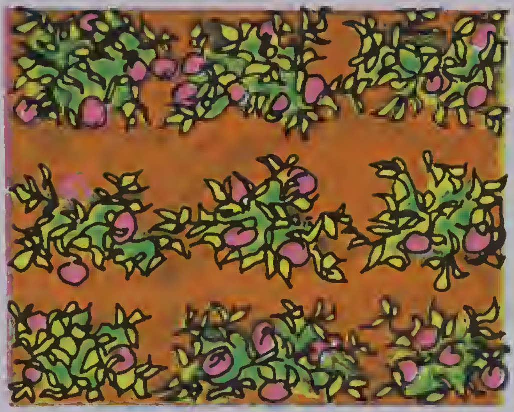
4 cm^2



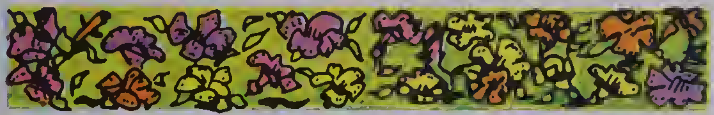
9 cm^2

1. Each student's drawing shows a garden.
What do you think is the area of each drawing?
Write your guess in your notebook.
Now measure each drawing to check your guess.

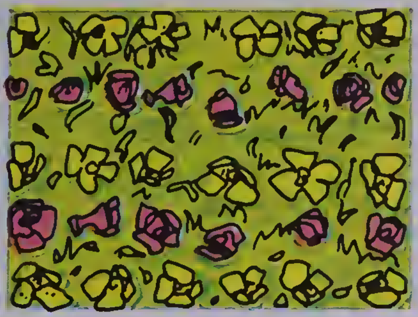
a) Maureen's tomato patch



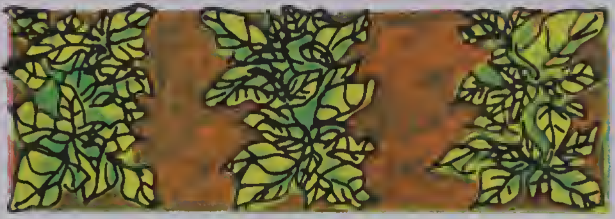
b) Giuseppi's border garden



c) Murray's flower garden



d) Sandra's potato patch



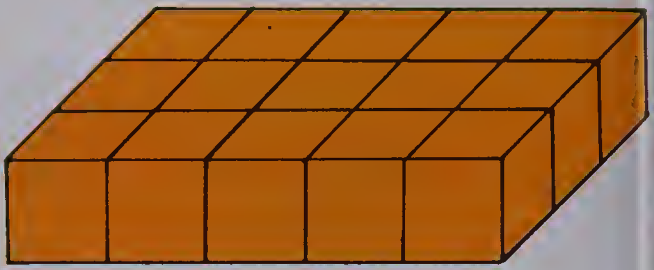
2. Use the square corner of your ruler to draw the rectangles.
What is the area of each shape?

a) 5 cm long, 2 cm wide
b) 6 cm long, 2 cm wide
c) 8 cm long, 4 cm wide
d) 7 cm long, 3 cm wide

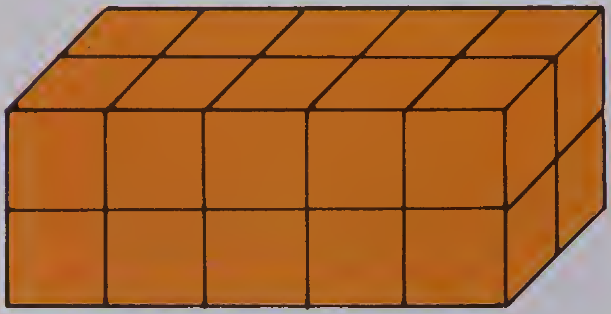
3. What is the area of each rectangle?

a) 5 cm by 3 cm
b) 4 cm by 1 cm
c) 6 cm by 2 cm
d) 8 cm by 5 cm
e) 10 cm by 4 cm
f) 4 cm by 4 cm
g) 9 cm by 4 cm
h) 7 cm by 5 cm

Volume



This rectangular prism has 1 layer of 1 cm cubes.
How many 1 cm cubes are there? What is the volume?
How long is the rectangular prism? How wide is it?
Use 1 cm cubes that fit together to build it.



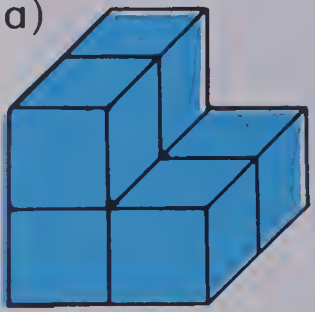
This rectangular prism has 2 layers.
What is the volume?
Use 1 cm cubes to build it.

Think about adding layers to the rectangular prism.
Make a chart.

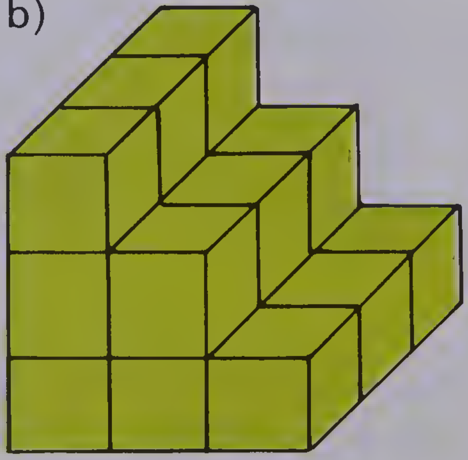
Number of layers	Length	Width	Height	Number of cubes (Volume)
1	5 cm	3 cm	1 cm	$15\ cm^3$
2	5 cm	3 cm	2 cm	
3	5 cm	3 cm	3 cm	
4	5 cm	3 cm	4 cm	
5	5 cm	3 cm	5 cm	

Find the volumes. Think about cubes you may not be able to see.

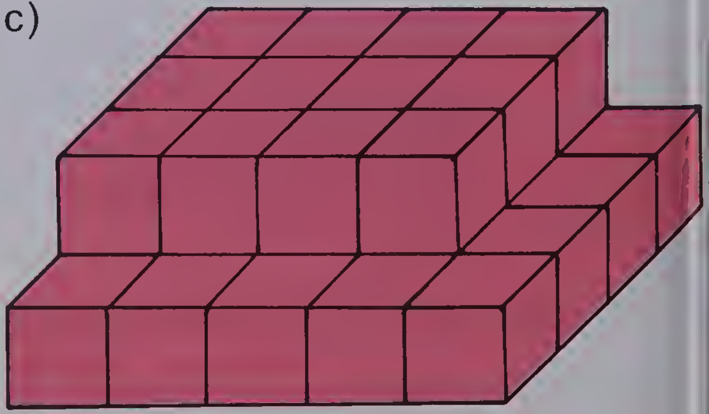
a)



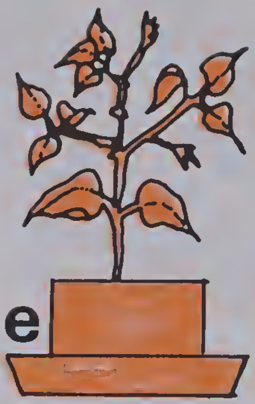
b)

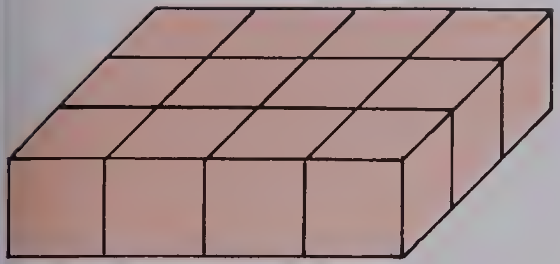


c)



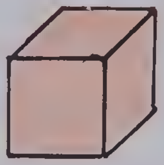
Volume



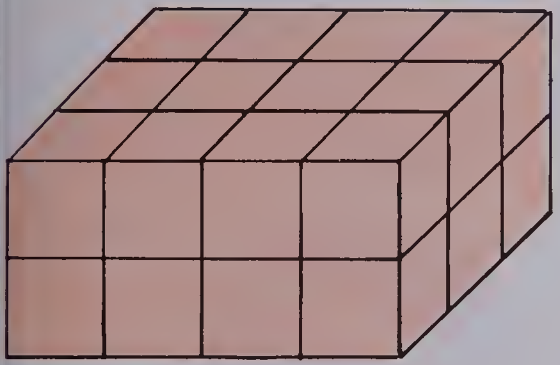


1 layer

Area of base = $(4 \times 3)\ \text{cm}^2$
Height = 1 cm
Volume = $(4 \times 3 \times 1)\ \text{cm}^3$
$= 12\ \text{cm}^3$



$1\ \text{cm}^3$

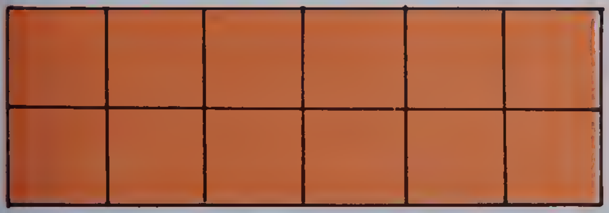


2 layers

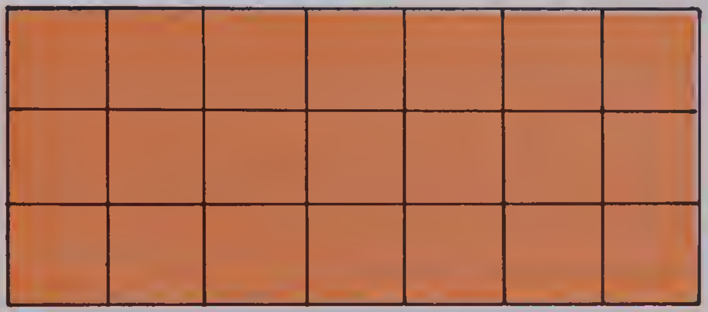
Area of base = $(4 \times 3)\ \text{cm}^2$
Height = 2 cm
Volume = $(4 \times 3 \times 2)\ \text{cm}^3$
$= 24\ \text{cm}^3$

1. Find the volume of a rectangular prism built on each pattern.

a) 3 layers



b) 2 layers



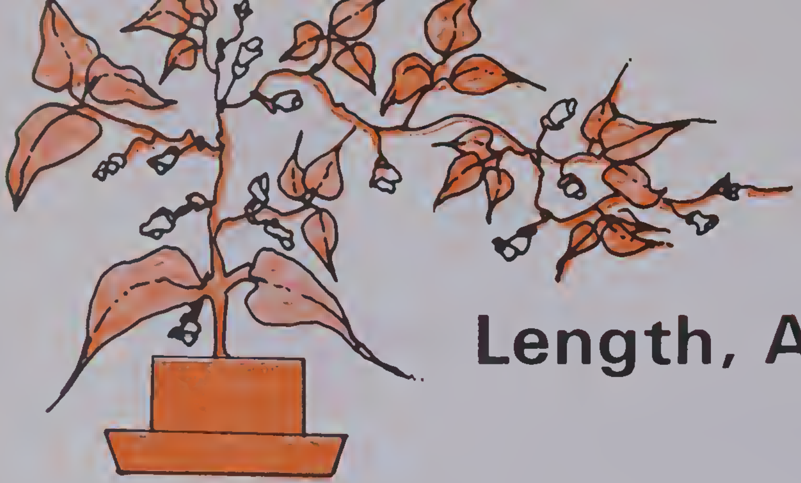
2. The children planted bean seeds in plastic boxes.
Find the volume of each box.

a) Gordon's seed box was
4 cm long,
2 cm wide,
3 cm high (3 layers).

b) Janet's seed box was
3 cm long,
7 cm wide,
4 cm high (4 layers).

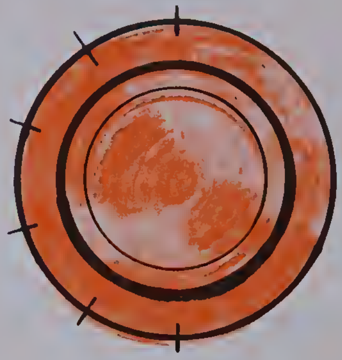
c) Lisa's seed box was
6 cm long,
4 cm wide,
2 cm high.

d) Leo's seed box was
4 cm long,
5 cm wide,
6 cm high.



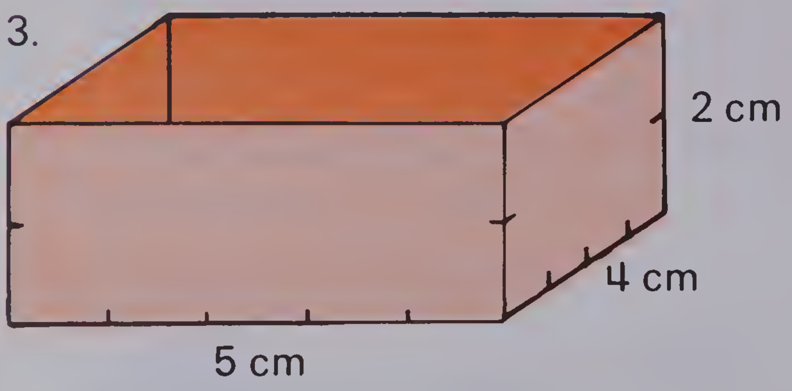
Length, Area, Volume

1. Work with a partner.
   Name an object that you think is about 10 cm long.
   Measure it. How close was your guess?
   Your partner chooses an object that she thinks is 10 cm long.
   How close was her guess?
   Repeat for lengths of 5 cm and 1 cm.



2. It is not as easy to guess the distance around an object.
   Try guessing half the distance around.
   Half the distance around the can is about 5 cm.
   The distance around it is about 10 cm.
   Find 3 cylinders.
   Guess the distance around one of them.
   Wrap a string around the cylinder and measure the string.
   Repeat for each of the other cylinders.

3.



Think about filling the box with 1 cm cubes.
What is the volume of the box?

4. Complete the chart for these boxes.

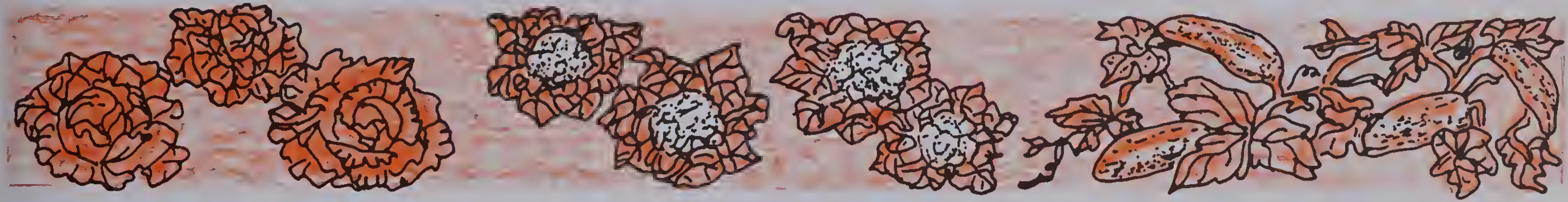
Length	Width	Area of base	Height	Volume
3 cm	4 cm	? cm^2	2 cm	? cm^3
8 cm	2 cm	? cm^2	3 cm	? cm^3
5 cm	7 cm	? cm^2	2 cm	? cm^3
6 cm	3 cm	? cm^2	4 cm	? cm^3

If, Then

Byway

The area of a card is 18 cm^2.
If the length is 3 cm, **then** the width is ? cm.
Give another "if, then" pair for 18 cm^2.

Give "if, then" pairs for
a) 20 cm^2 b) 16 cm^2 c) 24 cm^2



The volume of a rectangular prism is 30 cm^3.
If the area of the base is 10 cm^2, **then** the height is ? cm.

1. Give "if, then" pairs for
   a) 24 cm^3 b) 36 cm^3 c) 40 cm^3

2. Give possible lengths, widths, and heights for a box that holds
   a) 30 cm^3 b) 42 cm^3 c) 28 cm^3

3. Copy the chart and complete it.
   You may wish to build some of the rectangular prisms with 1 cm cubes that fit together.

Length	Width	Height (layers)	Volume
1 cm	6 cm	? cm	24 cm^3
2 cm	4 cm	? cm	24 cm^3
1 cm	? cm	6 cm	24 cm^3
2 cm	? cm	4 cm	24 cm^3
? cm	3 cm	8 cm	24 cm^3
? cm	2 cm	6 cm	24 cm^3
? cm	? cm	3 cm	24 cm^3

Multiplying Using Tens

If one number in a multiplication question is a number of tens, you can think the answer.

You know that 10 × 7 = 70
What is 20 × 7?

Think 20 × 7 = 2 tens × 7
= 14 tens
= 140

Now you know that 20 × 7 = **140**
Try 30 × 7 = ?

Think 30 × 7 = ? tens × 7
= ? tens
= ?

Complete the patterns in your notebook.

40 × 7 = ?
50 × 7 = ?
60 × 7 = ?
70 × 7 = ?
80 × 7 = ?
90 × 7 = ?

10 × 1 = ?
20 × 1 = ?
30 × 1 = ?
40 × 1 = ?
50 × 1 = ?
60 × 1 = ?

In Action

1. Complete patterns like the ones above in your notebook.

a) 10 × 8 = 80
20 × 8 = ?
30 × 8 = ?

b) 10 × 4 = ?
20 × 4 = 80

c) 90 × 6 = 540
80 × 6 = ?
70 × 6 = ?

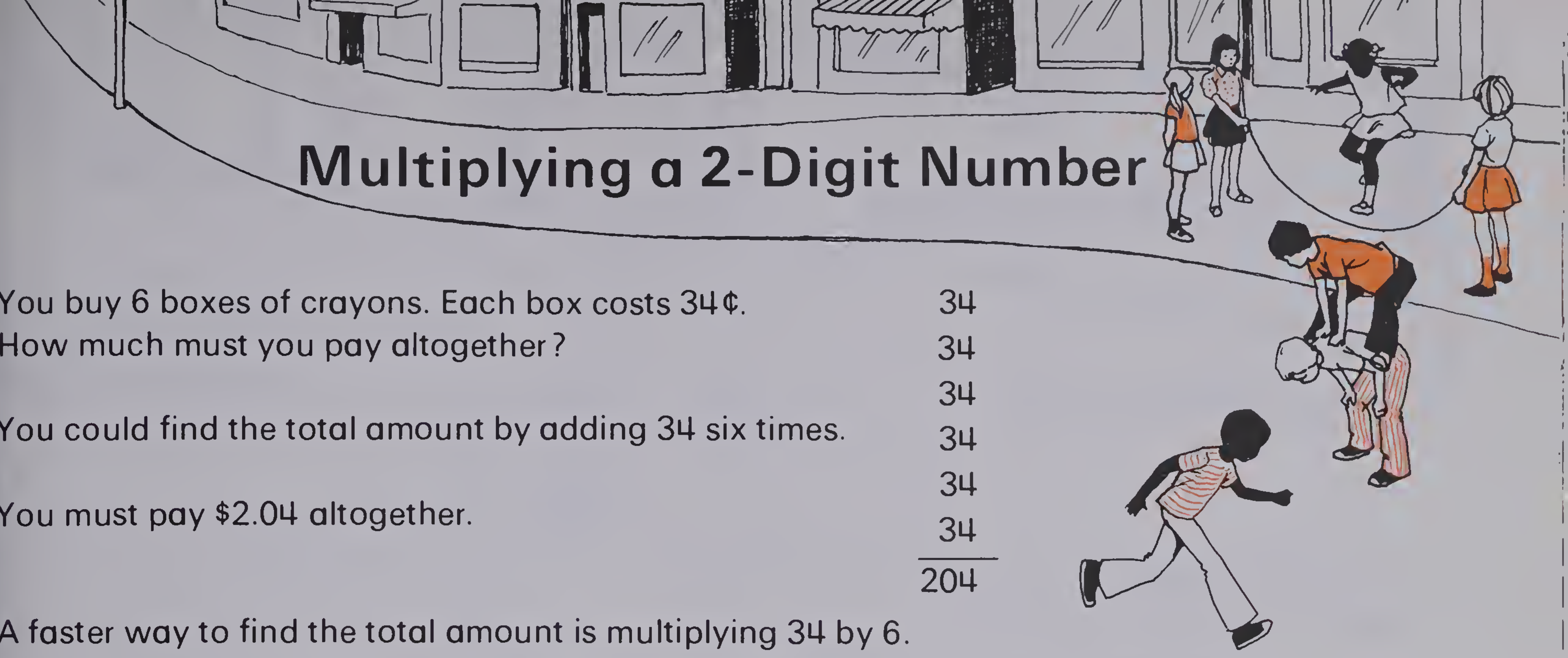
d) 90 × 9 = 810
80 × 9 = ?

e) 10 × 3 = ?
20 × 3 = ?
30 × 3 = ?

f) 90 × 5 = ?
80 × 5 = 400

g) 90 × 2 = ?
80 × 2 = ?
70 × 2 = ?

h) 10 × 7 = ?
20 × 7 = ?



Multiplying a 2-Digit Number

You buy 6 boxes of crayons. Each box costs 34¢.
How much must you pay altogether?

You could find the total amount by adding 34 six times.

You must pay $2.04 altogether.

$$\begin{array}{r} 34 \\ 34 \\ 34 \\ 34 \\ 34 \\ 34 \\ \hline 204 \end{array}$$

A faster way to find the total amount is multiplying 34 by 6.

$34 = 30 + 4$

To multiply 34 by 6,
we can multiply 4 by 6 and 30 by 6,
then add the answers.

$$34 \times 6 = \begin{array}{r} 30 + 4 \\ 6 \\ \hline 180 + 24 \end{array} = 204$$

In Action

1. Write the answers.

a) 7 × 5
b) 8 × 4
c) 7 × 9
d) 5 × 6
e) 9 × 3
f) 6 × 8
g) 4 × 2
h) 8 × 7
i) 4 × 9
j) 3 × 6

2. Write the answers.

a) 10 × 5
b) 20 × 4
c) 30 × 9
d) 40 × 6
e) 50 × 3
f) 60 × 8
g) 70 × 2
h) 80 × 7
i) 90 × 9
j) 50 × 6

3. Copy and complete.

a) $17 \times 5 = \begin{array}{r} 10 + 7 \\ 5 \\ \hline 50 + 35 = ? \end{array}$

b) $28 \times 4 = \begin{array}{r} 20 + 8 \\ 4 \\ \hline 80 + 32 = ? \end{array}$

c) $37 \times 9 = \begin{array}{r} 30 + 7 \\ 9 \\ \hline \end{array}$

d) $45 \times 6 = \begin{array}{r} 40 + 5 \\ 6 \\ \hline \end{array}$

e) 66 × 8

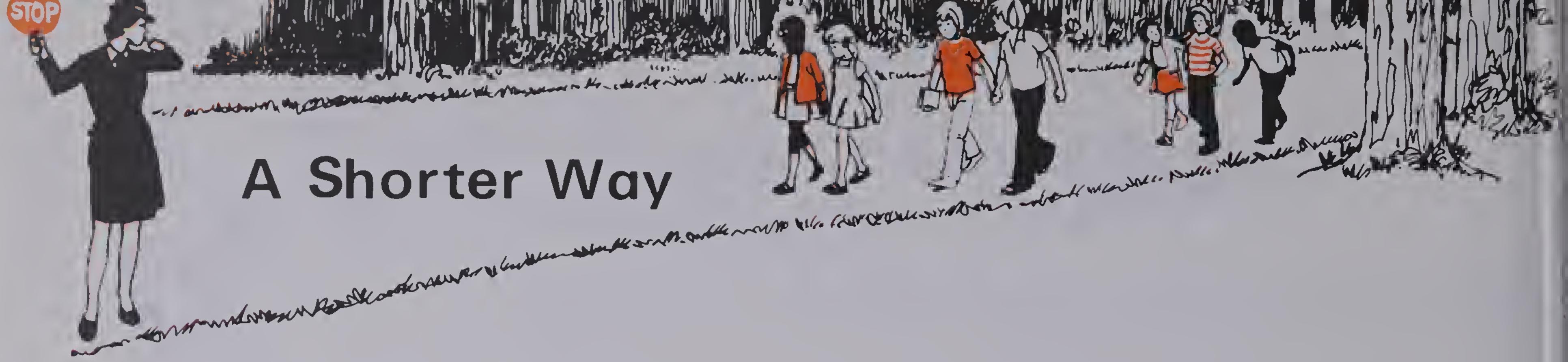
f) 74 × 2

g) 88 × 7

h) 94 × 9

i) 53 × 6

k) 47 × 3



A Shorter Way

You can multiply this way.

$$47 \times 8 = \begin{array}{r} 40 + 7 \\ 8 \\ \hline 320 + 56 = 376 \end{array}$$

It is easier to add the 2 answers if we write them in a column.

$$47 \times 8 = \begin{array}{rl} 47 & \\ 8 & \\ \hline 56 & \longrightarrow \text{First multiply } \mathbf{7} \times 8. \\ 320 & \longrightarrow \text{Then multiply } \mathbf{40} \times 8. \\ \hline 376 & \end{array}$$

Try this one in your notebook.

$$56 \times 4 = \begin{array}{rl} 56 & \\ 4 & \\ \hline 24 & \longrightarrow \text{First multiply } \mathbf{?} \times 4. \\ ? & \longrightarrow \text{Then multiply } \mathbf{50} \times 4. \\ \hline ? & \end{array}$$

In Action

1. Multiply. Write the answers in a column.

a) $\begin{array}{rl} 72 & \\ 5 & \\ \hline ? & \longrightarrow \text{First multiply } \mathbf{2} \times 5. \\ ? & \longrightarrow \text{Then multiply } \mathbf{70} \times 5. \\ \hline \end{array}$

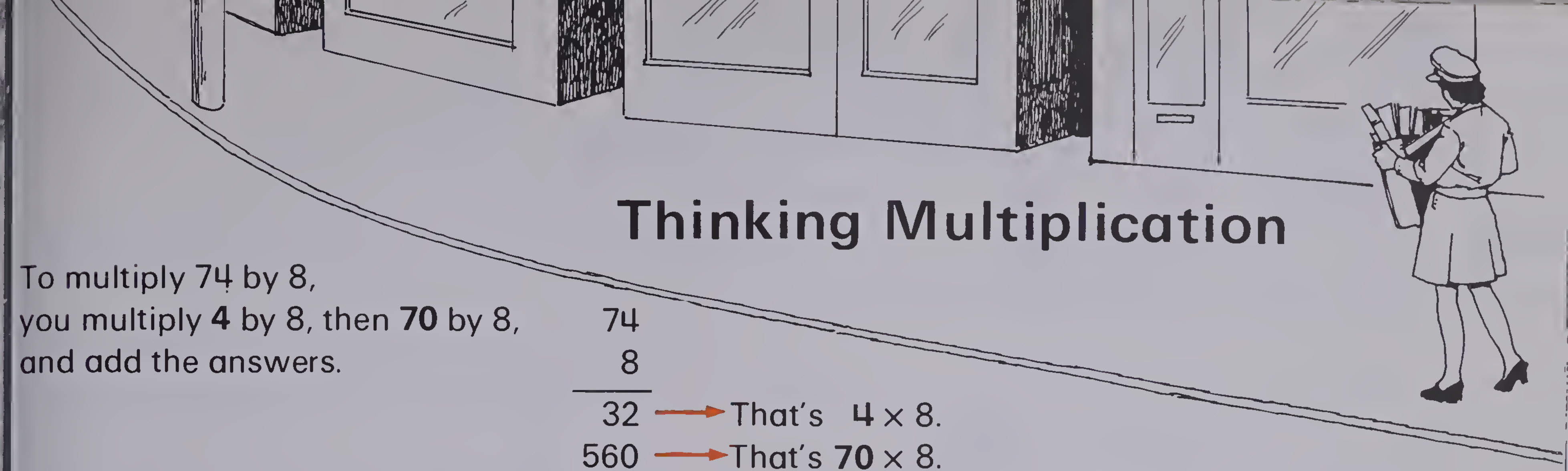
b) $\begin{array}{r} 81 \\ 2 \\ \hline \end{array}$ c) $\begin{array}{r} 63 \\ 7 \\ \hline \end{array}$ d) $\begin{array}{r} 95 \\ 4 \\ \hline \end{array}$

e) $\begin{array}{r} 29 \\ 3 \\ \hline \end{array}$ f) $\begin{array}{r} 15 \\ 8 \\ \hline \end{array}$ g) $\begin{array}{r} 62 \\ 7 \\ \hline \end{array}$

h) $\begin{array}{r} 31 \\ 9 \\ \hline \end{array}$ i) $\begin{array}{r} 26 \\ 5 \\ \hline \end{array}$ j) $\begin{array}{r} 73 \\ 2 \\ \hline \end{array}$

k) $\begin{array}{r} 98 \\ 7 \\ \hline \end{array}$ l) $\begin{array}{r} 82 \\ 4 \\ \hline \end{array}$ m) $\begin{array}{r} 11 \\ 6 \\ \hline \end{array}$

2. The city has 8 fire divisions. Each division has 52 firefighters on call. How many firefighters are protecting the city?



Thinking Multiplication

To multiply 74 by 8,
you multiply **4** by 8, then **70** by 8,
and add the answers.

$$\begin{array}{r} 74 \\ 8 \\ \hline 32 \\ 560 \\ \hline \mathbf{592} \end{array} \quad \begin{array}{l} \\ \\ \longrightarrow \text{That's } 4 \times 8. \\ \longrightarrow \text{That's } \mathbf{70} \times 8. \\ \\ \end{array}$$

the number of tens ↗ 592 ↖ the number of ones

We can take another short cut
and think the answer.

$$\begin{array}{r} 74 \\ 8 \\ \hline \mathbf{592} \end{array}$$

Think 32. Write 2 in the ones place.
Remember 3 tens.
Think 56, 59 tens. Write 59 in the tens place.

the number of tens ↗ 592 ↖ the number of ones

Try this one in your notebook.

$$\begin{array}{r} 65 \\ 3 \\ \hline ? \end{array}$$

Think 15. Write 5.
Remember ?
Think 18, ?. Write 19.

In Action

1. Multiply. Use the short cut.

a) $\begin{array}{r} 83 \\ 4 \\ \hline \end{array}$

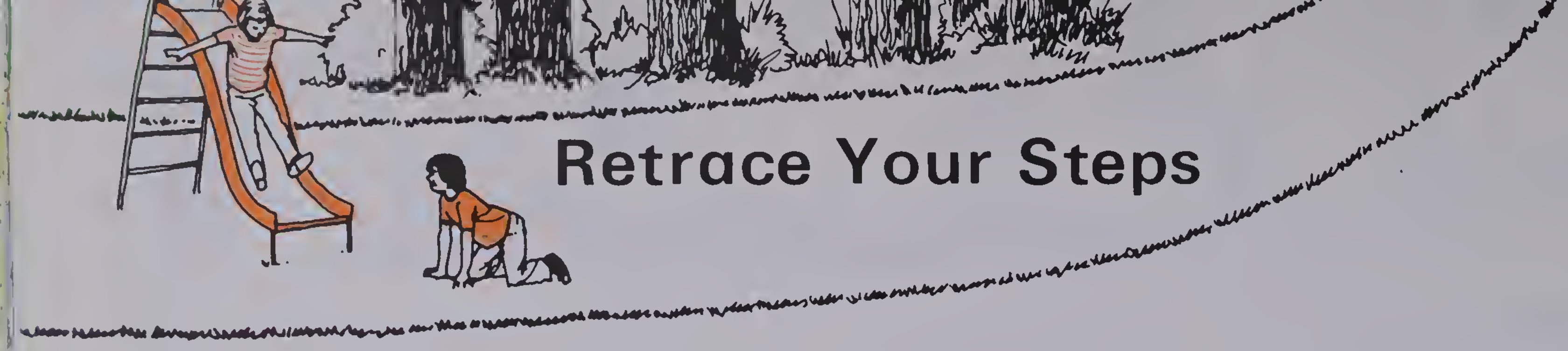
Think ?. Write 2.
Remember 1.
Think ?, 33. Write ?

e) $\begin{array}{r} 17 \\ 3 \\ \hline \end{array}$ h) $\begin{array}{r} 46 \\ 9 \\ \hline \end{array}$ k) $\begin{array}{r} 91 \\ 3 \\ \hline \end{array}$

f) $\begin{array}{r} 94 \\ 6 \\ \hline \end{array}$ i) $\begin{array}{r} 58 \\ 2 \\ \hline \end{array}$ l) $\begin{array}{r} 83 \\ 6 \\ \hline \end{array}$

b) $\begin{array}{r} 36 \\ 2 \\ \hline \end{array}$ c) $\begin{array}{r} 28 \\ 9 \\ \hline \end{array}$ d) $\begin{array}{r} 61 \\ 5 \\ \hline \end{array}$ g) $\begin{array}{r} 39 \\ 7 \\ \hline \end{array}$ j) $\begin{array}{r} 25 \\ 8 \\ \hline \end{array}$ m) $\begin{array}{r} 72 \\ 9 \\ \hline \end{array}$

2. A letter sorter sorts 35 letters every minute.
How many letters does he sort in 5 minutes?



Retrace Your Steps

Find 73 × 4.
We can use the long form.

$$\begin{array}{r} 73 \times 4 = 70 + 3 \\ 4 \\ \hline 280 + 12 = 292 \end{array}$$

Or, we can write the answers in a column and add.

$$\begin{array}{rl} 73 & \\ 4 & \\ \hline 12 & \rightarrow \text{That's } 3 \times 4. \\ 280 & \rightarrow \text{That's } 70 \times 4. \\ \hline 292 & \end{array}$$

When you understand how to multiply, use the short cut. Think the answers.

$$\begin{array}{r} 73 \\ 4 \\ \hline 292 \end{array}$$

Think 12. Write 2.
Remember 1.
Think 28, 29. Write 29.

In Action

1. Multiply. Use the short cut.

a) $\begin{array}{r} 13 \\ 7 \\ \hline \end{array}$ b) $\begin{array}{r} 46 \\ 2 \\ \hline \end{array}$ c) $\begin{array}{r} 52 \\ 4 \\ \hline \end{array}$ d) $\begin{array}{r} 29 \\ 3 \\ \hline \end{array}$ e) $\begin{array}{r} 71 \\ 6 \\ \hline \end{array}$ f) $\begin{array}{r} 18 \\ 5 \\ \hline \end{array}$

2. There are 2 sets of monkey bars in the park.
16 children are playing on each set.
How many children are playing on the monkey bars?

3. Sami, Katy, and Joel collected shiny stones.
Each child found 42 stones.
How many shiny stones did they gather altogether?

4. Squirrels in the park are looking for seeds.
4 squirrels each found 67 seeds.
How many seeds did the squirrels find altogether?

Byway

A Close Answer

Sometimes we just want a close answer—
we don't need to know the exact answer.

The Grade 3 class is having a party.
Each child will probably eat 2 hot dogs.
There are 29 children in the class.
About how many hot dogs should they buy?

The exact answer is 29 × 2.
A close, quick answer is **30** × 2.

The Grade 3 class needs about 60 hot dogs.

1. Find a close answer to these questions.

   a) 41 × 5
   41 is close to 40.
   Find 40 × 5.

   b) 38 × 7
   38 is close to ?
   Find ? × 7.

   c) 82 × 6
   ? is close to 80.

   d) 59 × 8
   ? is close to 60.

   e) 71 × 9
   71 is close to ?

   f) 18 × 7

   g) 92 × 8

   h) 39 × 4

   i) 91 × 3

   j) 28 × 5

2. A track meet was held for 5 city schools.
59 children came from each school.
About how many children came to the track meet?

3. You can use a close answer to check an exact answer.

$$\begin{array}{r} 82 \\ 6 \\ \hline 492 \end{array}$$

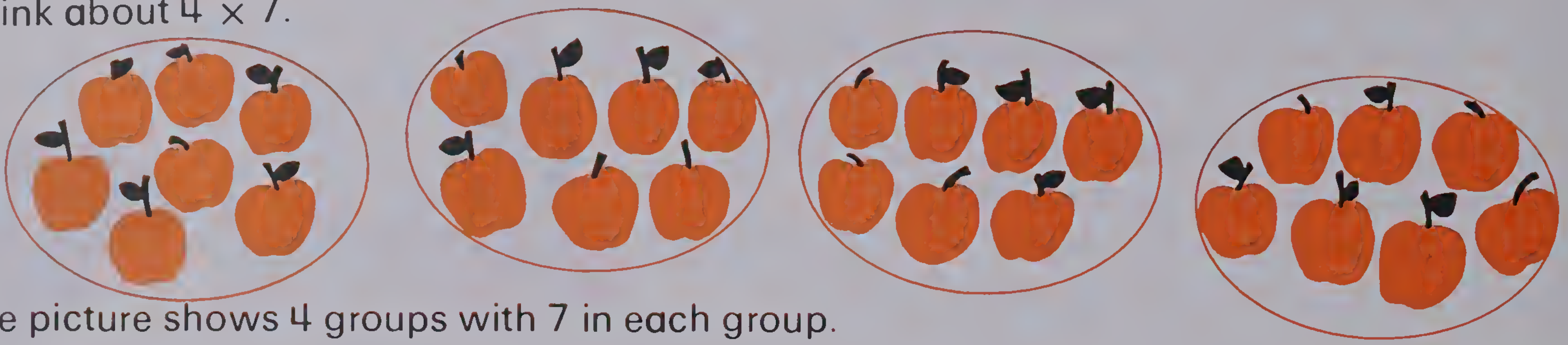
Is this answer probably correct?
Check, by finding a close answer.

Check your work for 79 × 2 and 61 × 9.

FRUIT STORE

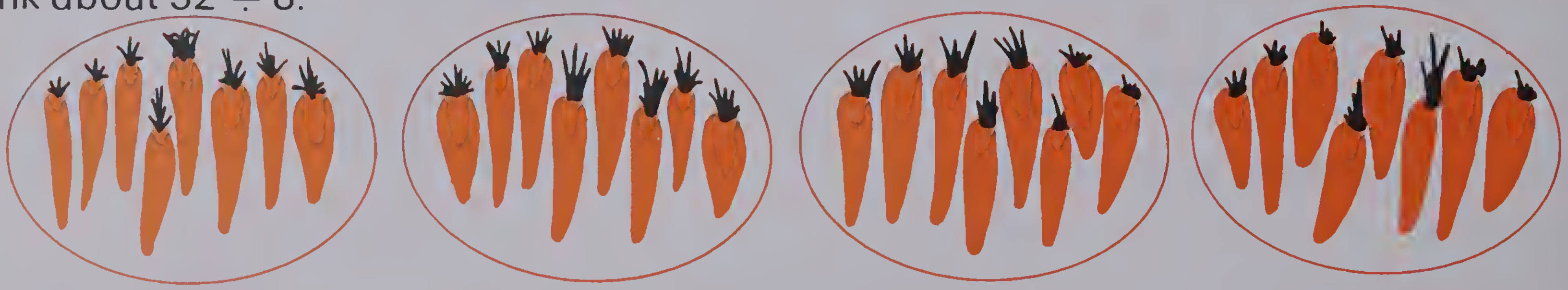
Multiplying and Dividing

Think about 4 × 7.



The picture shows 4 groups with 7 in each group.
There are 28 altogether.

Think about 32 ÷ 8.



The picture shows 32 altogether, with 8 in each group.
There are 4 groups.

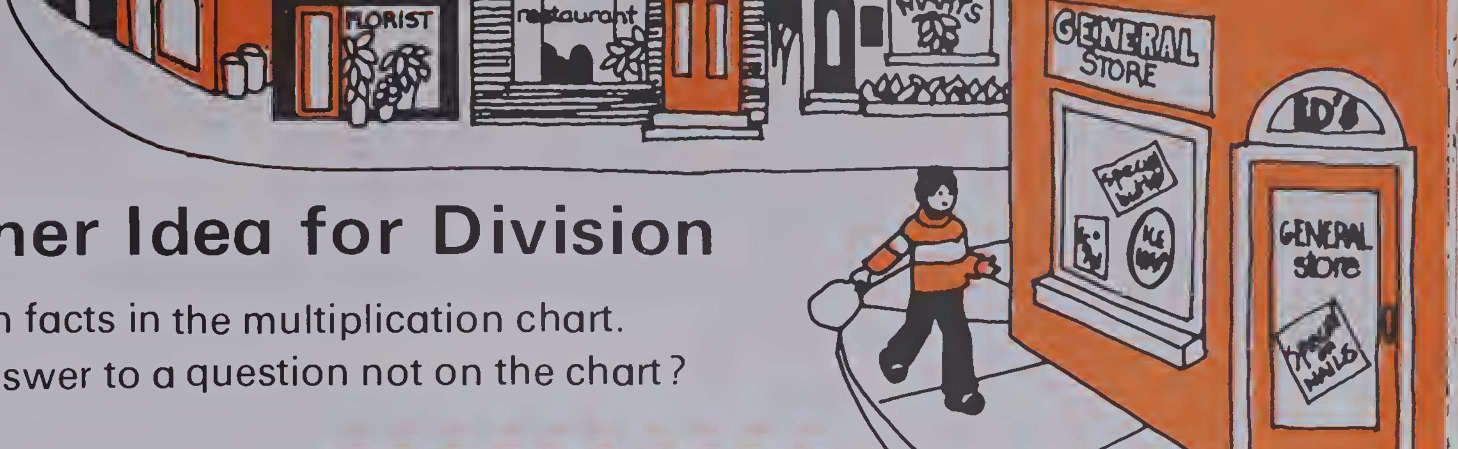
In Action

1. You have 45¢.
   You give 9¢ to each of your best friends.
   How many friends get the money?
   Think of "dividing" 45 into groups of 9.
   $45 \div 9 = ?$

2. Cheryl ate 21 bananas last week.
   She ate the same number each day.
   How many bananas did she eat each day?

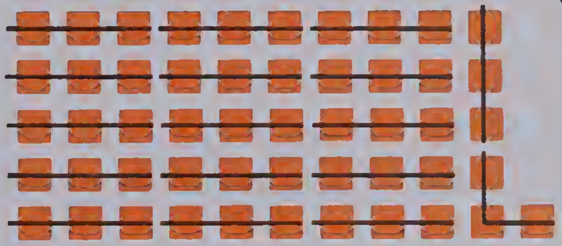
3. There are 7 boxes of tomatoes.
   Each box has 6 tomatoes in it.
   How many tomatoes are there?
   Think of 7 groups,
   with 6 in each group. $7 \times 6 = ?$

4. Joe bought some peas at the market.
   He found 8 peas in each of 6 pods.
   How many peas did he find altogether?



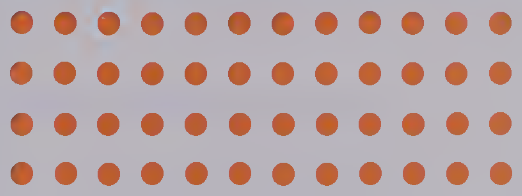
Another Idea for Division

You know all the division facts in the multiplication chart.
How can you find the answer to a question not on the chart?



What is 51 ÷ 3?
Draw a picture of 51 objects.
Then group the objects in groups of 3.
How many groups of 3?

51 ÷ 3 = **17**



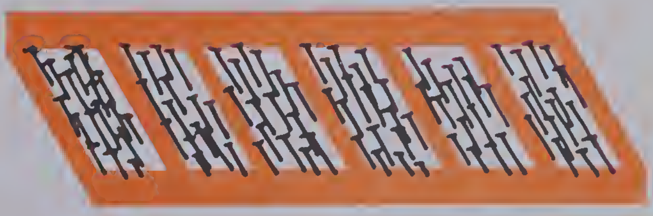
Try this one in your notebook.
What is 48 ÷ 4?
Draw a picture of 48 objects.
Then group the objects in groups of 4.
How many groups of 4?

48 ÷ 4 = ?

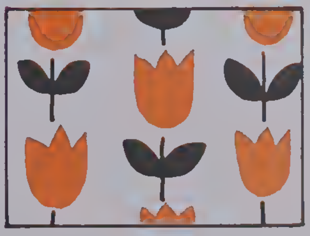
In Action

1. Draw pictures and group the objects.
How many groups?

a) 60 ÷ 5 b) 24 ÷ 2 c) 42 ÷ 3 d) 44 ÷ 4 e) 36 ÷ 2



2. The clerk in the hardware store sorted 78 nails.
She put them in 6 boxes.
The same number of nails were placed in each box.
How many nails were placed in each box?



3. I have 70 patterned wall tiles.
I want to lay them in 5 equal rows.
How many tiles should I lay in each row?

A New Approach

Division tells how many times one number is contained in another number.

You know the division facts to 100 ÷ 10.
You also know how to multiply a number by 10.
You can use these facts to find the answers to division questions.

Let's try 120 ÷ 8.
Here is one way you can find the answer.

```
8)120 |
   80 |  10 ↖
  ----       )  Add.
   40 |       )
   40 |   5 ↙
  ---- ----
    0 |  15
```

You know that 120 is greater than 10 × 8.
Subtract **10** × 8.
What is left over?
Now you know that 8 is contained in 40 **five** times.
Add the answers.

120 ÷ 8 = **15**

In Action

Use the new approach to divide.

1.
```
5)60 |
  50 |  10   Subtract 10 × 5.
 ----
  10 |
  10 |   ?   Subtract ? × 5.
 ----  ---
   0 |   ?   Add the answers.
```

2.
```
4)72 |
  40 |  10  Subtract 10 × 4.
 ----
  32 |
   ? |   ?  Subtract ? × 4.
 ----  ---
```

3. $6\overline{)84}$

4. $3\overline{)57}$

5. $7\overline{)91}$

6. $9\overline{)162}$

7. $6\overline{)90}$

8. $2\overline{)34}$

9. $4\overline{)64}$

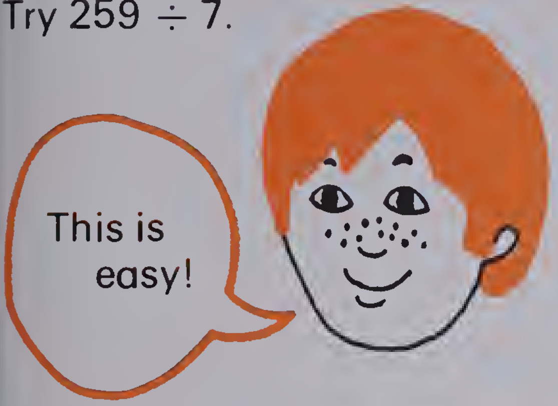
10. $8\overline{)144}$

Larger Numbers

SALE
DAVIS
WALT DISNEY
TH

It is easy to use the new approach for still larger numbers.

Try 259 ÷ 7.


This is easy!

7)259		Since 259 is greater than 10 × 7,
70	**10**	Subtract **10** × 7.
189		
70	**10**	Subtract **10** × 7 again.
119		
70	**10**	Subtract **10** × 7 once more.
49		
49	**7**	Subtract **7** × 7.
0	**37**	Add the answers.

259 ÷ 7 = 37

In Action

1. Divide.

a)

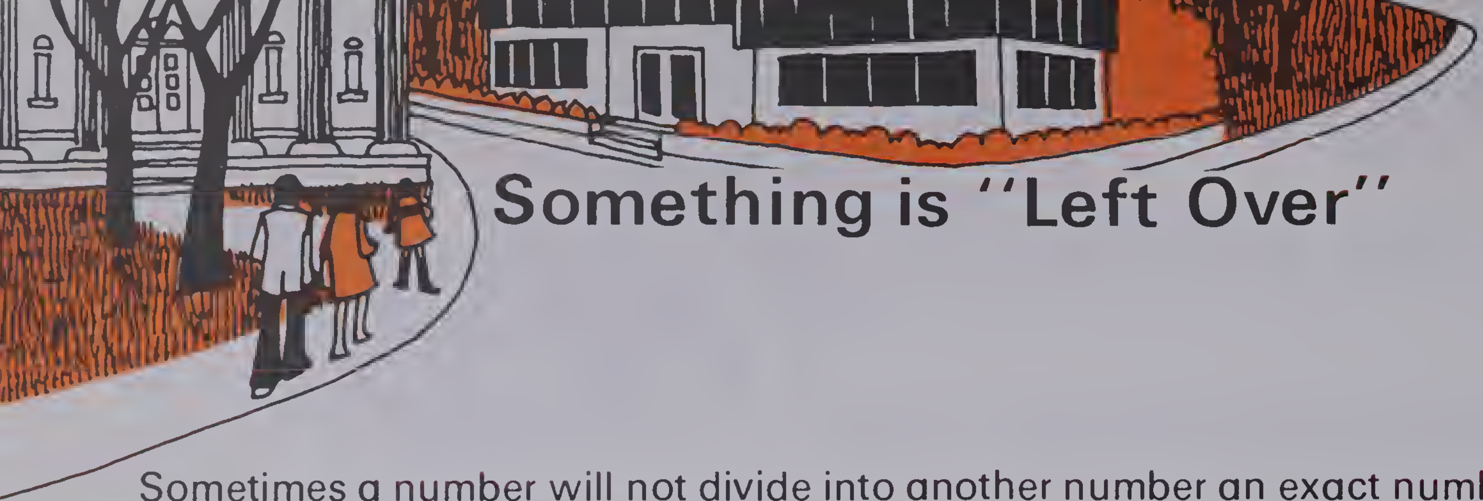
4) 100		
40	10	Subtract 10 × 4.
60		
40	?	Subtract ? × 4.
20		
20	?	Subtract ? × 4.
0	?	Add the answers.

b)

6) 156		
60	10	Subtract 10 × 6.
96		
?	?	Subtract ? × 6.
?		
?	?	Subtract ? × 6.

c) 2)42 d) 3) 102 e) 5) 145 f) 9) 297 g) 4) 204 h) 9) 243
i) 8) 256 j) 7) 168 k) 5) 205 l) 3) 156 m) 2) 92 n) 6) 258

2. The triangle-shaped mall has 87 stores.
Each side of the triangle has the same number of stores.
How many stores are along one side of the mall?



Something is "Left Over"

Sometimes a number will not divide into another number an exact number of times. There is something "left over". This is called the **remainder.**

Divide 256 by 7.

$$
\begin{array}{r|ll}
7\overline{)\,256} & & \\
70 & 10 & \text{Subtract } 10 \times 7. \\
\hline
186 & & \\
70 & 10 & \text{Subtract } 10 \times 7. \\
\hline
116 & & \\
70 & 10 & \text{Subtract } 10 \times 7. \\
\hline
46 & & \\
42 & \underline{\;6\;} & \text{Subtract } 6 \times 7. \\
\hline
4 & 36 &
\end{array}
$$

256 ÷ 7 = 36, **remainder 4**

You know that 46 does not contain 7 an exact number of times.

In Action

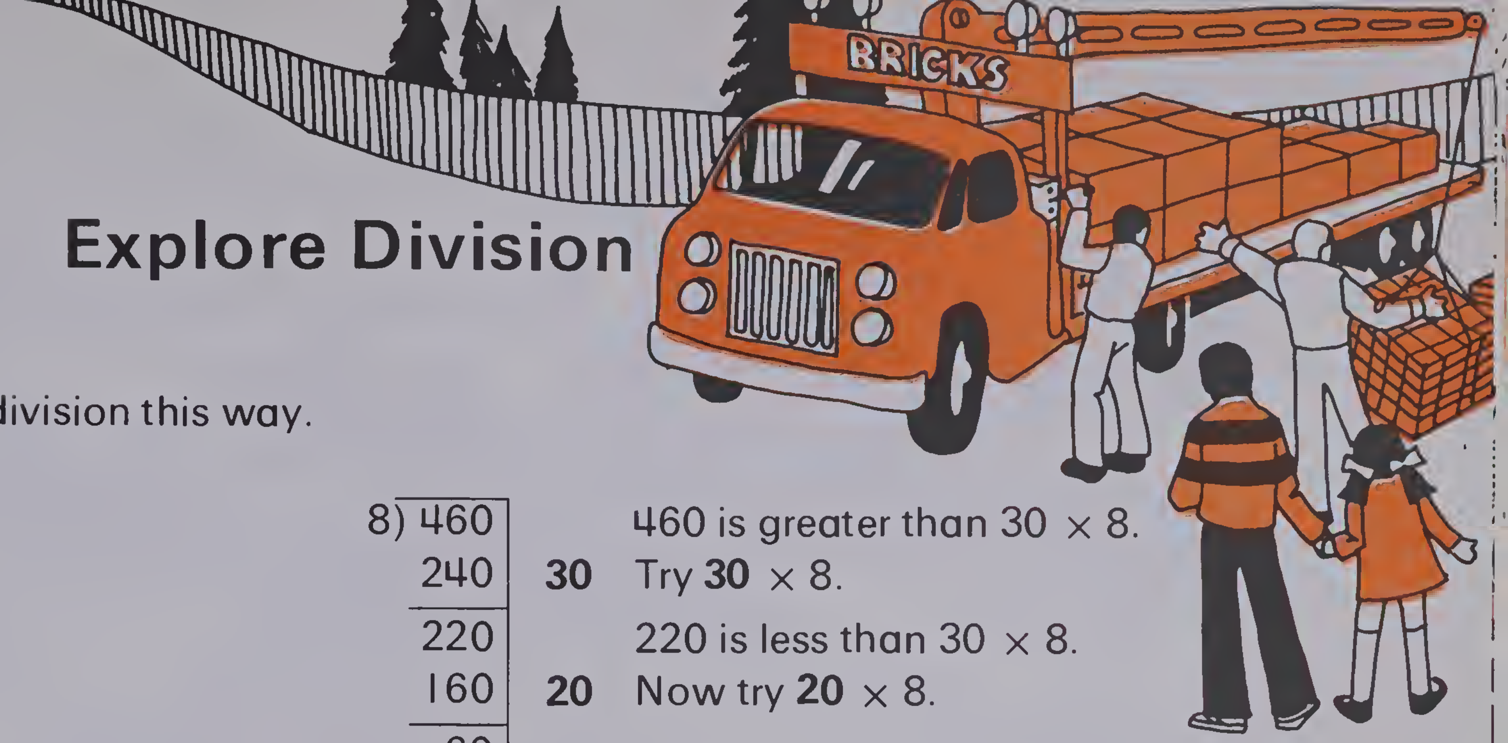
1. Find the remainders.

a) $2\overline{)31}$
b) $5\overline{)73}$
c) $8\overline{)109}$
d) $9\overline{)115}$
e) $3\overline{)56}$
f) $4\overline{)70}$
g) $6\overline{)119}$
h) $7\overline{)83}$
i) $8\overline{)187}$
j) $4\overline{)87}$

2. Divide.

a) $2\overline{)79}$
b) $5\overline{)189}$
c) $8\overline{)358}$
d) $9\overline{)410}$
e) $5\overline{)292}$
f) $9\overline{)475}$
g) $7\overline{)390}$
h) $6\overline{)190}$
i) $4\overline{)175}$
j) $3\overline{)140}$

3. There are 132 chairs for 5 rooms.
If we put the same number in each room, how many go in each room?
How many are left over?



Explore Division

You can shorten your division this way.

Divide 460 by 8.

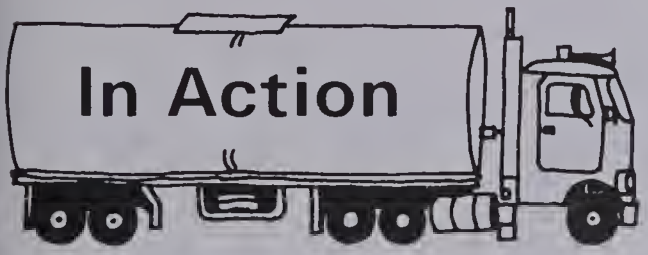
$$\begin{array}{r|rl}
8)\overline{460} & & \text{460 is greater than } 30 \times 8.\\
\underline{240} & \mathbf{30} & \text{Try } \mathbf{30} \times 8.\\
220 & & \text{220 is less than } 30 \times 8.\\
\underline{160} & \mathbf{20} & \text{Now try } \mathbf{20} \times 8.\\
60 & & \\
\underline{56} & \underline{\mathbf{7}} & \text{Subtract } \mathbf{7} \times 8.\\
4 & \mathbf{57} &
\end{array}$$

460 ÷ 8 = 57, remainder 4.

We can write the answer **57R4**.

R stands for **remainder.**

You could have made the division even shorter. How?
Remember that 5 × 8 = 40
and 50 × 8 = 400.
You could have subtracted 50 × 8 first.



In Action

1. Divide.

a) $2\overline{)107}$
b) $9\overline{)310}$
c) $7\overline{)345}$
d) $5\overline{)133}$
e) $3\overline{)172}$
f) $8\overline{)238}$
g) $6\overline{)350}$
h) $4\overline{)131}$
i) $5\overline{)164}$
j) $7\overline{)234}$

2. Divide.

a) $2\overline{)83}$
b) $6\overline{)255}$
c) $8\overline{)490}$
d) $4\overline{)118}$
e) $5\overline{)229}$
f) $9\overline{)343}$
g) $7\overline{)188}$
h) $2\overline{)157}$
i) $3\overline{)190}$
j) $6\overline{)404}$

3. The men worked 3 shifts to complete the building on time.
There were 77 men working on the building.
How many men worked each shift?

Library News

Retrace Your Steps

1. Divide.

a) 2)129 c) 5)369 e) 8)370 g) 2)105 i) 3)170

b) 4)233 d) 7)368 f) 9)625 h) 7)480 j) 9)168

2. Find the remainders.

a) 3)245 c) 9)690 e) 6)452 g) 2)175 i) 6)373

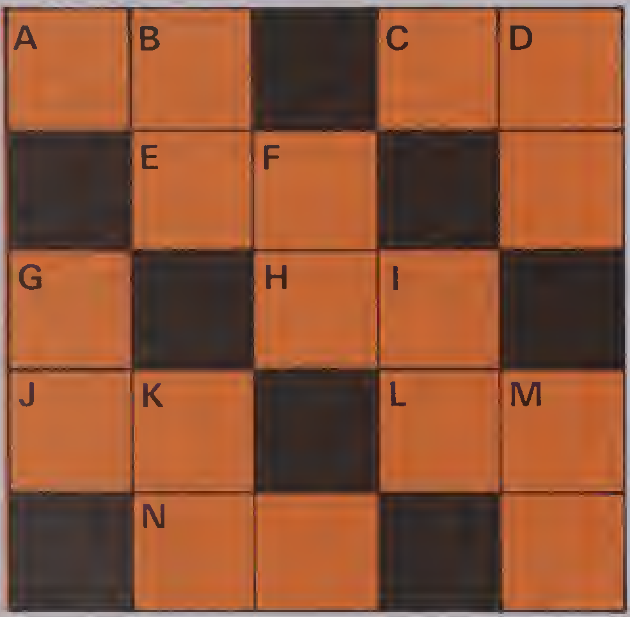
b) 4)258 d) 5)174 f) 8)509 h) 7)657 j) 8)606

3. Divide.

a) 3)283 c) 7)570 e) 5)314 g) 9)317 i) 8)286 k) 6)247

b) 2)149 d) 4)66 f) 4)335 h) 6)295 j) 5)88 l) 5)176

4. Copy the puzzle into your notebook. Complete.



A	B	■	C	D
■	E	F	■	
G	■	H	I	■
J	K	■	L	M
■	N		■	

Across

A 3 tens and 7

C 73 − 47

E 110 ÷ 2

H 41 × 2

J $0.16 = \frac{?}{100}$

L 177 ÷ 3

N 0.4 m = ? cm

Down

B 25 × 3

D 268 ÷ 4

F 39 + 19

G 27 × 3

I ? × 4 = 100

K 100 − (6 × 6)

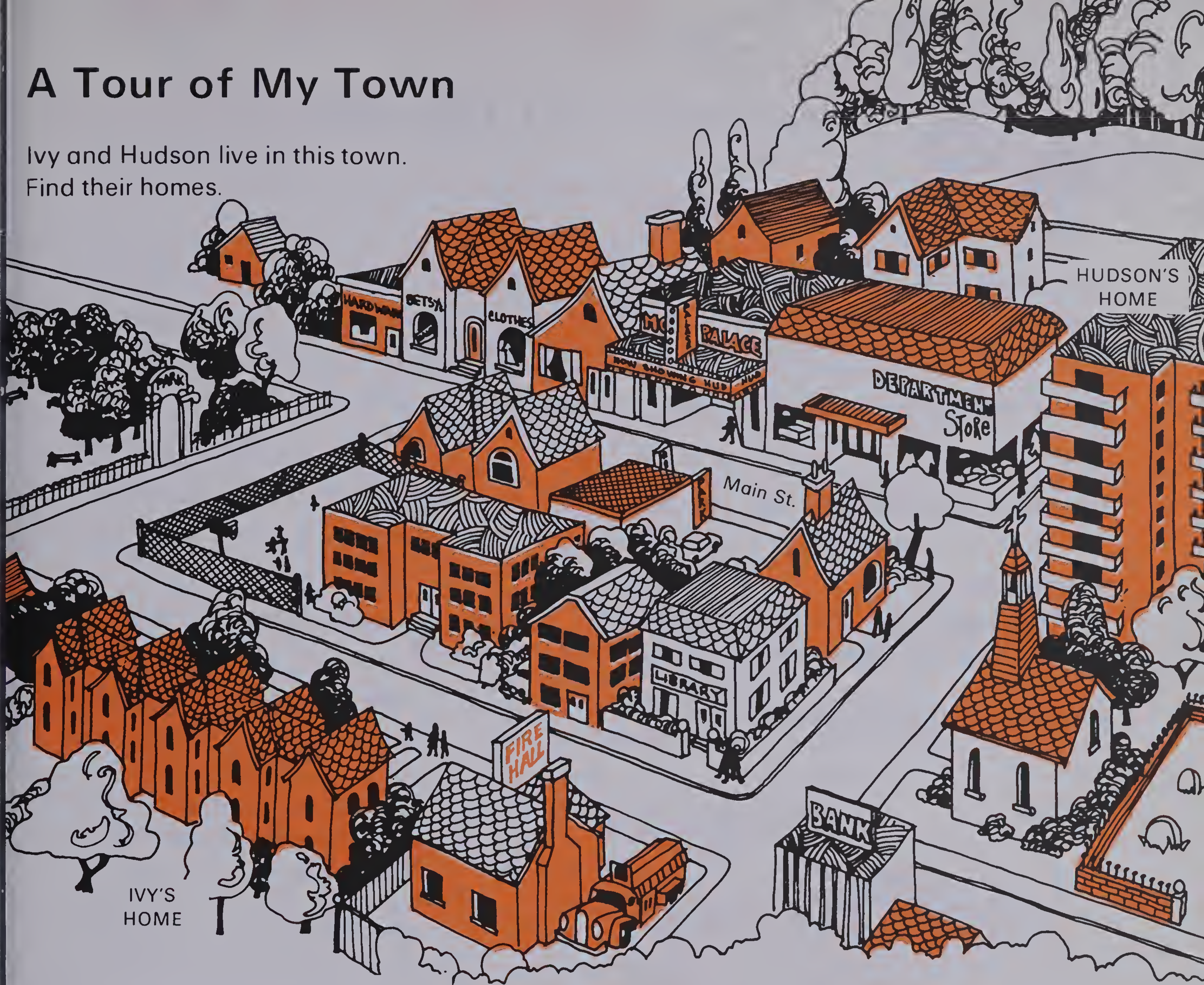
M The largest 2-digit number

5. Karen's library books were overdue. She paid a 96¢ fine for 6 books. What was the fine for each book?

6. On Saturday, 8 friends went to the museum. Each paid 25¢ for a ticket. What was the total cost?

A Tour of My Town

Ivy and Hudson live in this town.
Find their homes.


HUDSON'S HOME
HARDWARE
BETSY'S
CLOTHES
PALACE
NOW SHOWING
DEPARTMENT STORE
Main St.
LIBRARY
FIRE HALL
BANK
IVY'S HOME

1. What interesting things could Ivy pass on her way to visit Hudson?
2. There are 48 apartments in Hudson's building.
   4 people live in each apartment.
   How many live in the building?
3. Ivy visits the library every month.
   She borrowed 84 books in 7 months.
   How many books did she borrow each month?
4. There are 27 dogs in the town.
   There are twice as many cats.
   How many dogs and cats live in the town?
5. Hudson went shopping on the main street.
   He spent 84¢ for 6 coloured pencils.
   How much did each pencil cost?
6. Write a story about your town.

Multiplying by 10, 100, 1000

How can you find 20 × 10?
You could get the answer this way.
20 + 20 + 20 + 20 + 20 + 20 + 20 + 20 + 20 + 20 = 200

Or you could get the answer this way.

20 × 10 = 2 tens × 10
= 20 tens
= 200

It is easy to find the answer this way.

20 × 10 = 200

What is 23 × 10?
You could add 23 ten times and get 230.
You can simply write the answer.

23 × 10 = 230

Copy the patterns and complete them.

1 × 10 = ?
2 × 10 = ?
3 × 10 = ?
4 × 10 = ?
5 × 10 = ?
6 × 10 = ?
7 × 10 = ?
8 × 10 = ?
9 × 10 = ?

10 × 10 = 100
20 × 10 = ?
30 × 10 = ?
40 × 10 = ?
50 × 10 = ?
60 × 10 = ?
70 × 10 = ?
80 × 10 = ?
90 × 10 = ?

13 × 10 = 130
23 × 10 = ?
33 × 10 = ?
43 × 10 = ?
53 × 10 = ?
63 × 10 = ?
73 × 10 = ?
83 × 10 = ?
93 × 10 = ?

What is 23 × 100?
If you added 23 one hundred times, it would take too long.
You would get 2300.

23 × 100 = 2300

What is 23 × 1000?

It is easy to multiply by 10, 100, or 1000.
What are your rules?

In Action

1. How many cents?

a) 3 dimes
b) 4 dimes
c) 5 dimes
d) 9 dimes
e) 12 dimes
f) 24 dimes
g) 36 dimes
h) 58 dimes

2. How many cents?

a) 2 dollars
b) 6 dollars
c) 8 dollars
d) 10 dollars
e) 15 dollars
f) 25 dollars
g) 35 dollars
h) 47 dollars

3. Each box holds 1000 coloured beads.
How many beads?

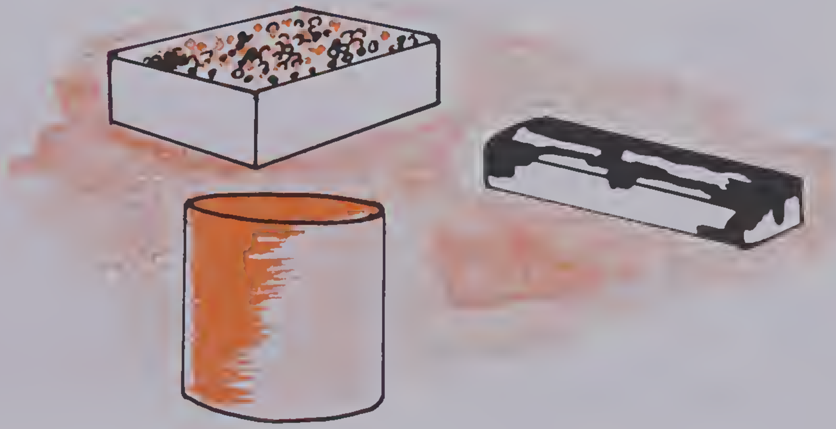
a) 3 boxes
b) 5 boxes
c) 7 boxes
d) 9 boxes

4. Each iron bar has a mass of 1000 g.
What is the mass in grams?

a) 2 bars
b) 6 bars
c) 8 bars
d) 12 bars

5. Each jar holds 1000 mL.
What is the capacity in millilitres?

a) 4 jars
b) 7 jars
c) 15 jars
d) 20 jars



6. How many centimetres are in a metre?
What is the length in centimetres?

a) a flower bed 4 m long
b) a room 5 m long
c) a basketball player 2 m tall
d) a Rose Parade float 12 m long

7. Multiply by 10.

a) 9
b) 14
c) 28
d) 47
e) 75
f) 150

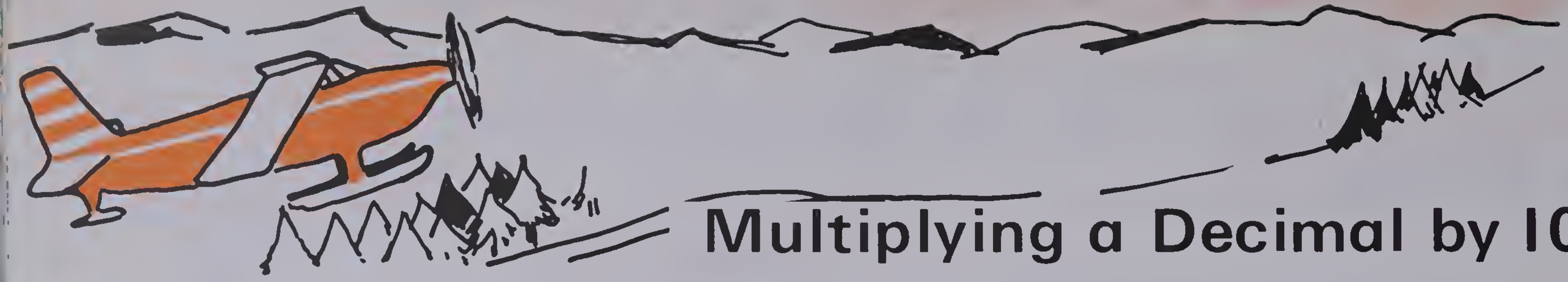
8. Multiply by 100.

a) 3
b) 5
c) 7
d) 13
e) 26
f) 38

9. Multiply by 1000.

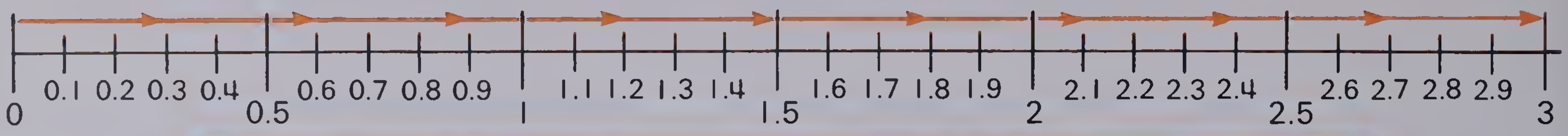
a) 2
b) 4
c) 12
d) 17
e) 39
f) 59

10. Create a game about multiplying by 10, 100, or 1000.



Multiplying a Decimal by 10

What is 0.3 × 10?
You could get the answer this way.


0
0.1 0.2 0.3 0.4
0.5
0.6 0.7 0.8 0.9
1
1.1 1.2 1.3 1.4
1.5
1.6 1.7 1.8 1.9
2
2.1 2.2 2.3 2.4
2.5
2.6 2.7 2.8 2.9
3

0.3 + 0.3 + 0.3 + 0.3 + 0.3 + 0.3 + 0.3 + 0.3 + 0.3 + 0.3 = 3.0

You can see that

$$0.3 \times 10 = 3.0 \text{ or simply } 3$$

Multiplying by 10 just **moves the decimal point one place to the right.**

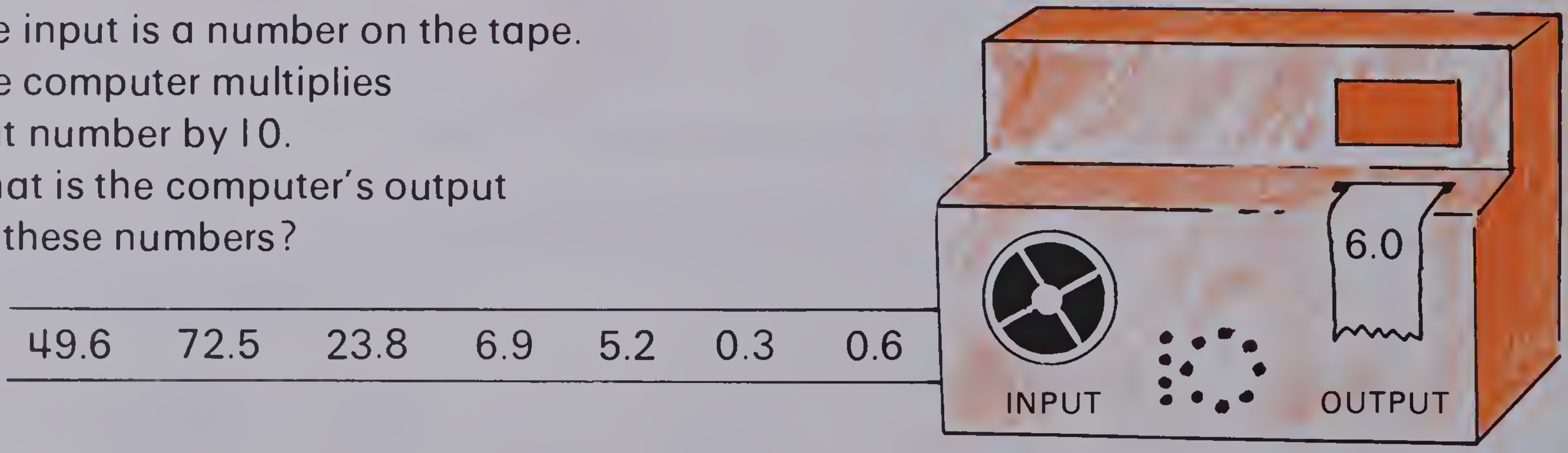
What is 2.3 × 10?

In Action

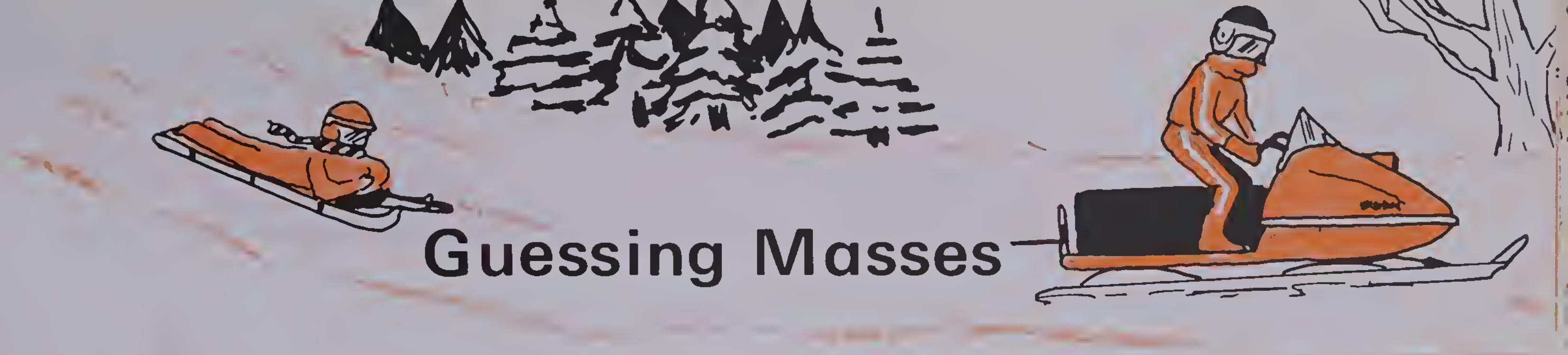
1. Multiply by 10.
   - a) 0.1
   - b) 0.4
   - c) 0.5
   - d) 0.8

2. Multiply by 10.
   - a) 70
   - b) 7
   - c) 5.7
   - d) 0.7

3. This is a "10 for 1" computer.
   The input is a number on the tape.
   The computer multiplies
   that number by 10.
   What is the computer's output
   for these numbers?


49.6
72.5
23.8
6.9
5.2
0.3
0.6
6.0
INPUT
OUTPUT

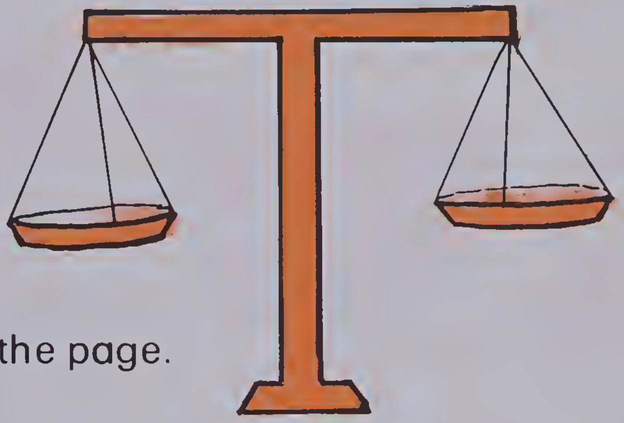
4. The snow fell for 10 days.
   1.2 cm of snow fell every day.
   How much snow fell altogether?



Guessing Masses

Hold a kilogram mass in one hand.
What objects do you think would have a mass of 1 kg?
Think of holding one of these in your other hand.

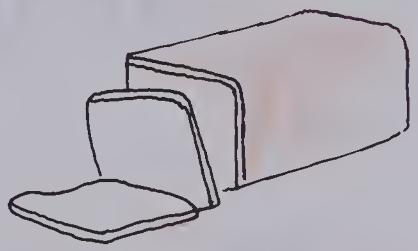
Do the same for 500 g, 100 g, and 50 g.



Guess the mass of each object.
Match the object with one of the masses in the middle of the page.
Then check your guess with the answers at the bottom.

8. a Christmas turkey

1. a large cat



2. a loaf of bread

7. a jockey

a) 30 kg
b) 150 g
c) 5 g
d) 4 kg

e) 700 g
f) 10 kg
g) 150 g
h) 50 kg

3. a girl in your class

6. an apple

5 CENTS
CANADA
1975

5. a nickel

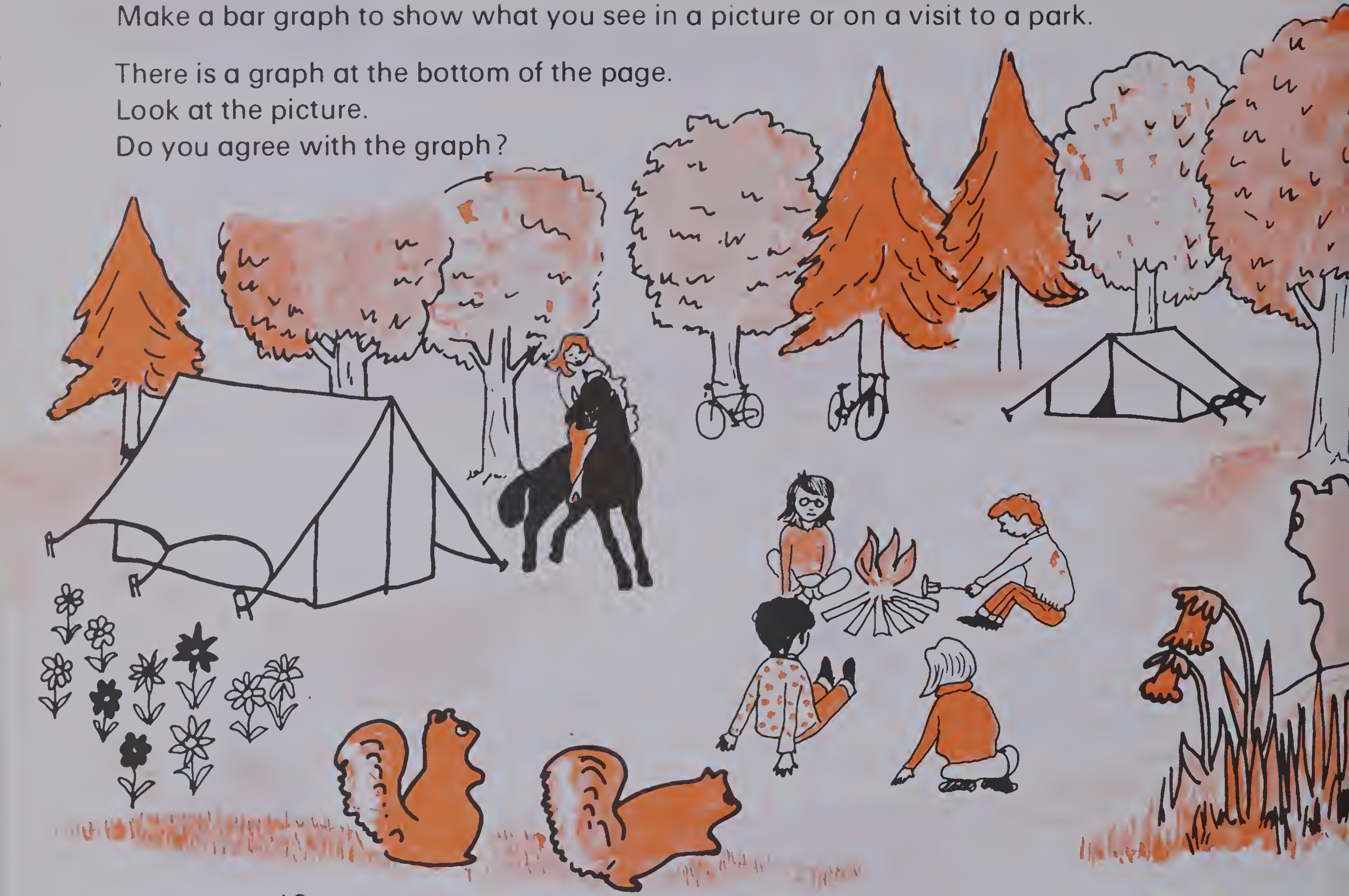
4. a boiled egg

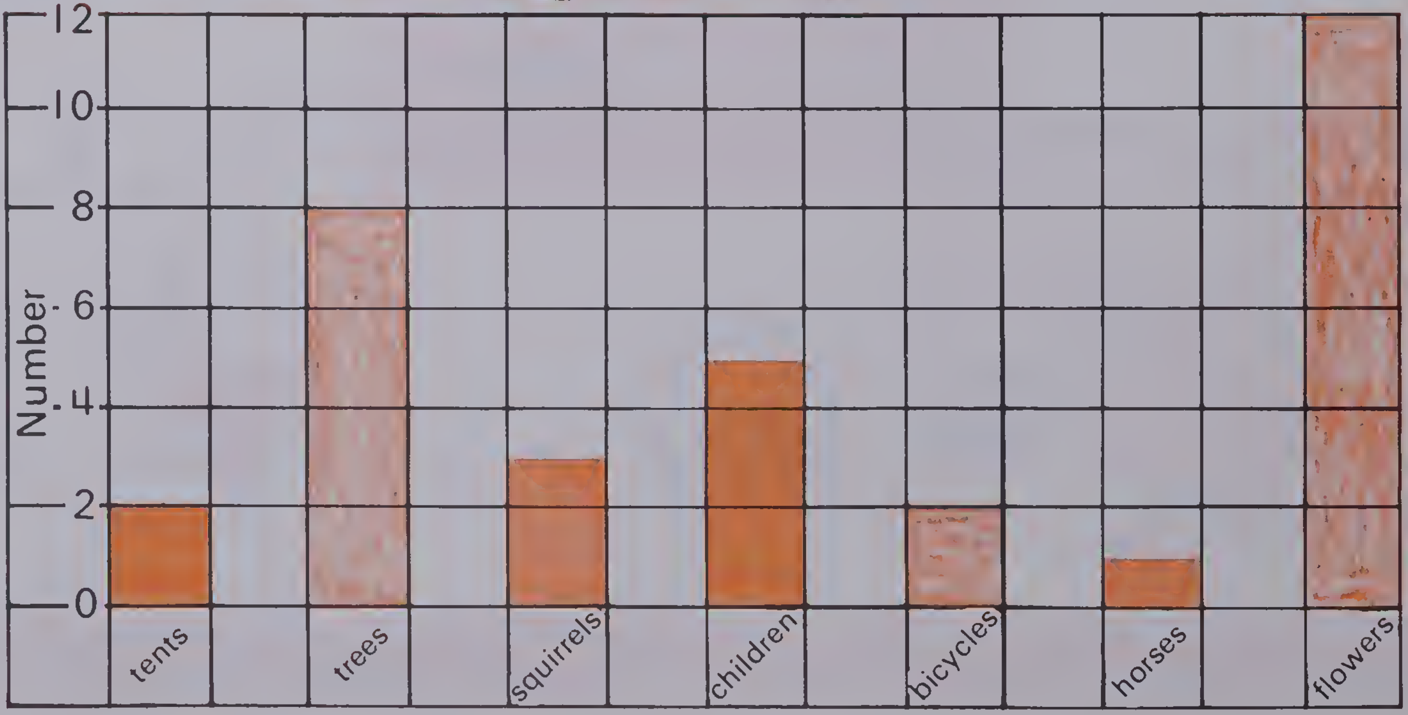
1.d. 2.e. 3.a. 4.g. 5.c. 6.b. 7.h. 8.f.

Graphs

Make a bar graph to show what you see in a picture or on a visit to a park.

There is a graph at the bottom of the page.
Look at the picture.
Do you agree with the graph?





Years

What year is this?
Write the meaning of the number.
Write the long form of the number.

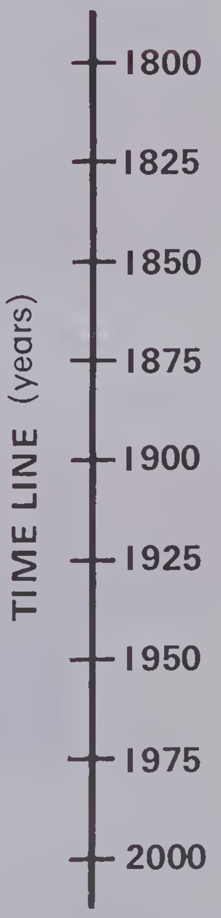
For 1979, the answers are

1979 means 1 thousand, 9 hundreds, 7 tens, and 9
$1979 = 1000 + 900 + 70 + 9$

What year was last year?
What year will next year be?

What year were you born?
If you know a friend's birthdate, how can you find his or her age without asking?

Part of Canada's History

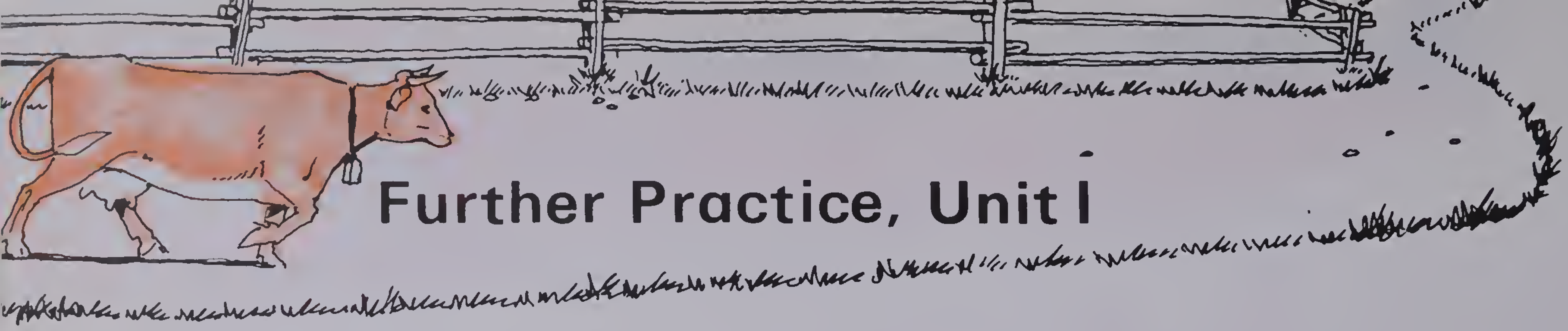


1. In 1867, Canada was born.
   Nova Scotia, New Brunswick, Québec, and Ontario
   became the first provinces of Canada.
   How old is Canada?

2. The first telephone call was made in 1874 by
   Alexander Graham Bell.
   How old is the telephone?

3. The first Canadian airplane flight
   was made from Cape Breton Island in 1909.
   How long have Canadians been flying airplanes?

4. In 1949, Newfoundland joined Confederation.
   How long have Newfoundlanders been Canadian?
   How many provinces are in Canada altogether?



Further Practice, Unit I

Improvement depends on you.
Check your own work. The answers are on page 300.

Addition

1. Add. Think the answers.

a)

Number Pair	Answer
(6, 5)	
(4, 9)	
(8, 7)	
(9, 5)	
(6, 3)	

b)

Number Pair	Answer
(4, 5)	
(8, 4)	
(7, 9)	
(9, 9)	
(8, 6)	

c)

Number Pair	Answer
(11, 8)	
(8, 10)	
(14, 6)	
(2, 15)	
(12, 4)	

If you have made mistakes, study the addition facts.
The chart you made for page 31 may help you.
Then try these number pairs.

2. Add.

a)

Number Pair	Answer
(7, 3)	
(9, 4)	
(5, 8)	
(6, 7)	
(5, 9)	

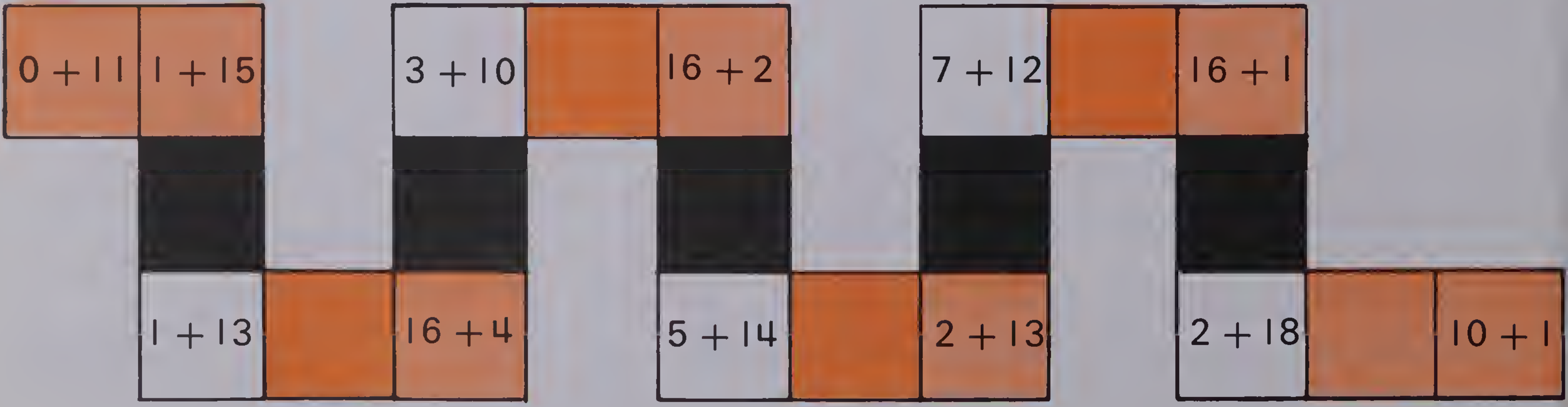
b)

Number Pair	Answer
(8, 9)	
(7, 5)	
(9, 7)	
(8, 8)	
(6, 8)	

c)

Number Pair	Answer
(11, 9)	
(14, 1)	
(8, 12)	
(13, 5)	
(12, 7)	

3. Complete the dominoes.



Subtraction

You should know the subtraction facts just as well as you know the addition facts. The answers are on page 300.

4. Subtract.
Think the answers. Be quick and correct.

a)

Number Pair	Answer
(9, 5)	
(7, 4)	
(11, 6)	
(15, 7)	
(17, 9)	

b)

Number Pair	Answer
(12, 5)	
(14, 6)	
(18, 9)	
(13, 7)	
(16, 7)	

c)

Number Pair	Answer
(20, 10)	
(19, 8)	
(14, 11)	
(20, 14)	
(18, 17)	

If you made mistakes, study the subtraction facts.
Then try these number pairs.

5. Subtract.

a)

Number Pair	Answer
(13, 4)	
(16, 9)	
(15, 6)	
(17, 4)	
(12, 7)	

b)

Number Pair	Answer
(14, 8)	
(11, 7)	
(18, 13)	
(17, 12)	
(15, 8)	

c)

Number Pair	Answer
(19, 15)	
(20, 4)	
(13, 1)	
(18, 7)	
(19, 11)	

6. Make up some number pairs.
Subtract.
Ask someone in your group to check your answers.

7. Work with a partner.
Use 3 wooden cubes for dice.
Write the numerals 5 to 10 on the faces of each die.
Roll the dice.
Your partner adds 2 numbers.
Subtract the third number from her total.
Roll the dice again. Take turns adding and subtracting.

Multiplication and Division

You have spent a lot of time learning multiplication facts.
Let's check the facts to 5 × 5.
The answers are on page 300.

8. Multiply.
Think the answers.

a)

Number Pair	Answer
(4, 5)	
(2, 5)	
(3, 4)	
(4, 4)	
(5, 3)	
(5, 5)	

b)

Number Pair	Answer
(3, 3)	
(5, 4)	
(0, 5)	
(4, 3)	
(3, 5)	
(2, 2)	

c)

Number Pair	Answer
(1, 5)	
(2, 4)	
(0, 3)	
(5, 2)	
(2, 3)	
(4, 2)	

9. Are you happy with your work on Question 8?
If not, study the multiplication facts.
The chart you made for page 47 will help you.
Then do Question 8 again.

Now check the division facts to 25 ÷ 5.

10. Divide.
Think the answers.

a)

Number Pair	Answer
(12, 4)	
(16, 4)	
(15, 3)	
(9, 3)	
(15, 5)	
(12, 3)	

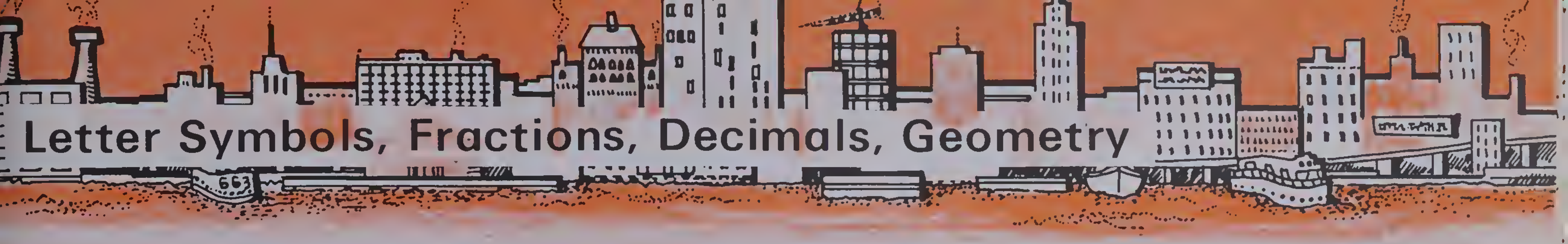
b)

Number Pair	Answer
(20, 4)	
(25, 5)	
(10, 2)	
(3, 3)	
(6, 2)	
(8, 4)	

c)

Number Pair	Answer
(6, 3)	
(8, 2)	
(10, 5)	
(20, 5)	
(3, 1)	
(0, 2)	

11. If you made mistakes, study the division facts with someone in your group.
Then do Question 10 again.



Letter Symbols, Fractions, Decimals, Geometry

How well can you use the addition, subtraction, multiplication, and division facts? Answers are on page 300.

12. Solve.

a) $k = 10 \div 5$
$k = ?$

b) $n = 17 - 9$
$n = ?$

c) $p = 9 + 9$
$p = ?$

d) $q = 20 - 12$
$q = ?$

e) $r = 1 + 17$
$r = ?$

f) $j = 7 + 8$
$j = ?$

g) $c = 19 - 13$
$c = ?$

h) $d = 13 - 6$
$d = ?$

i) $e = 4 \times 5$
$e = ?$

j) $f = 8 \div 2$
$f = ?$

k) $m = 5 \times 5$
$m = ?$

l) $g = 11 - 5$
$g = ?$

m) $w = 20 \div 4$
$w = ?$

n) $h = 18 - 5$
$h = ?$

o) $v = 15 - 7$
$v = ?$

p) $a = 3 \times 5$
$a = ?$

How well you do Question 13 depends on how well you know the facts you have studied.

13. Solve.

a) $n + 7 = 15$
$n = ?$

b) $p - 8 = 9$
$p = ?$

c) $r - 3 = 17$
$r = ?$

d) $a + 11 = 18$
$a = ?$

e) $w - 6 = 5$
$w = ?$

f) $u \times 4 = 20$
$u = ?$

g) $c \div 5 = 5$
$c = ?$

h) $d - 6 = 7$
$d = ?$

i) $e \div 3 = 3$
$e = ?$

j) $f \div 1 = 2$
$f = ?$

k) $g + 16 = 20$
$g = ?$

l) $h \times 3 = 12$
$h = ?$

m) $k - 8 = 8$
$k = ?$

n) $m \div 4 = 4$
$m = ?$

o) $v \times 5 = 25$
$v = ?$

p) $y + 5 = 19$
$y = ?$

14. Write the fraction or decimal.

a) $\frac{3}{10} = ?$

b) $\frac{5}{10} = ?$

c) $0.6 = ?$

d) $0.1 = ?$

e) $0.5 = ?$

f) $\frac{2}{10} = ?$

g) $\frac{7}{10} = ?$

h) $\frac{1}{2} = ?$

i) $0.9 = ?$

j) $0.4 = ?$

15. Name the 2-dimensional shapes that you find as faces of 3-dimensional models.

Answers to Further Practice, Unit I

1. a)	b)	c)	2. a)	b)	c)
11	9	19	10	17	20
13	12	18	13	12	15
15	16	20	13	16	20
14	18	17	13	16	18
9	14	16	14	14	19

4. a)	b)	c)	5. a)	b)	c)
4	7	10	9	6	4
3	8	11	7	4	16
5	9	3	9	5	12
8	6	6	13	5	11
8	9	1	5	7	8

8. a)	b)	c)	10. a)	b)	c)
20	9	5	3	5	2
10	20	8	4	5	4
12	0	0	5	5	2
16	12	10	3	1	4
15	15	6	3	3	3
25	4	8	4	2	0

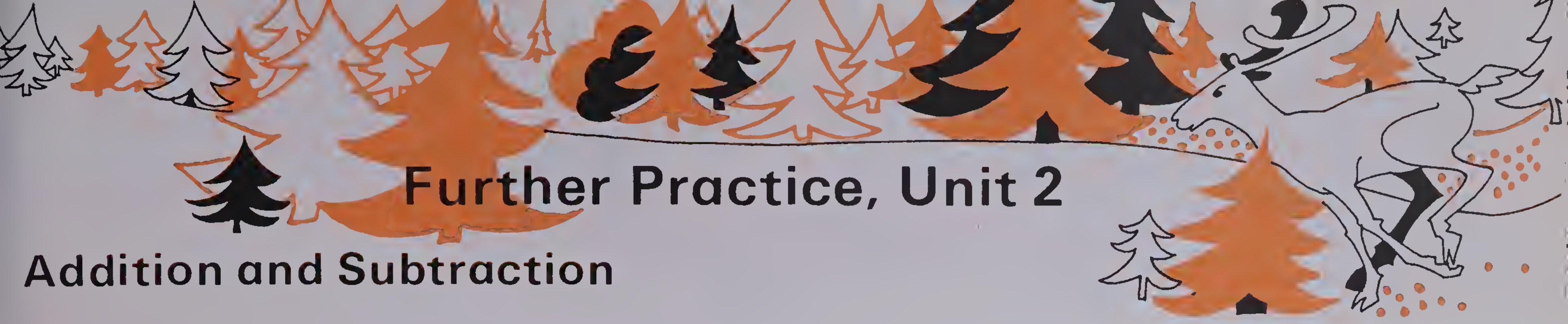
12. a) $k = 2$
b) $n = 8$
c) $p = 18$
d) $q = 8$
e) $r = 18$
f) $j = 15$
g) $c = 6$
h) $d = 7$
i) $e = 20$
j) $f = 4$
k) $m = 25$
l) $g = 6$
m) $w = 5$
n) $h = 13$
o) $v = 8$
p) $a = 15$

13. a) $n = 8$
b) $p = 17$
c) $r = 20$
d) $a = 7$
e) $w = 11$
f) $u = 5$
g) $c = 25$
h) $d = 13$
i) $e = 9$
j) $f = 2$
k) $g = 4$
l) $h = 4$
m) $k = 16$
n) $m = 16$
o) $v = 5$
p) $y = 14$

14. a) 0.3
b) 0.5
c) $\frac{6}{10}$ or $\frac{3}{5}$
d) $\frac{1}{10}$
e) $\frac{5}{10}$ or $\frac{1}{2}$
f) 0.2
g) 0.7
h) 0.5
i) $\frac{9}{10}$
j) $\frac{4}{10}$ or $\frac{2}{5}$

15. Did you name these?

circle—cone, cylinder
square—cube, square pyramid
triangle—triangular prism, square pyramid, triangular pyramid
rectangle—rectangular prism, triangular prism



Further Practice, Unit 2

Addition and Subtraction

Can you exchange 10 for 1 and 1 for 10?

The answers are on page 305.

1. Add. Think of exchanging 10 for 1 ten.

37 46	Think 13 5, 8	49 38	76 19	48 36	57 25	64 29	87 9	18 62
429 135	Think 14 4, 6 5	362 328	147 316	757 238	626 148	171 819	209 483	574 217

2. Subtract. Think of exchanging 1 ten for 10.

63 27	Think 13, 6 5, 3	57 39	86 27	92 77	76 48	32 18	73 26	90 35

3. Subtract. Use the same exchange.

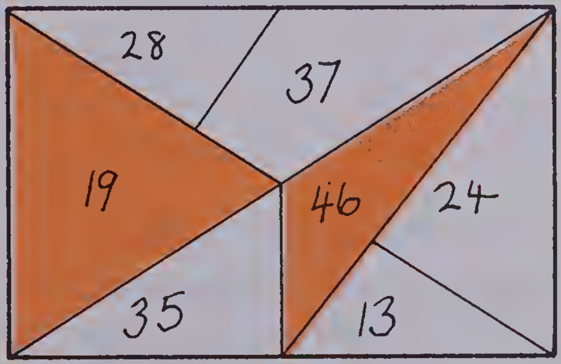
833 214	Think 13, 9 2, 1 8, 6	952 628	547 129	763 525	872 346	884 136

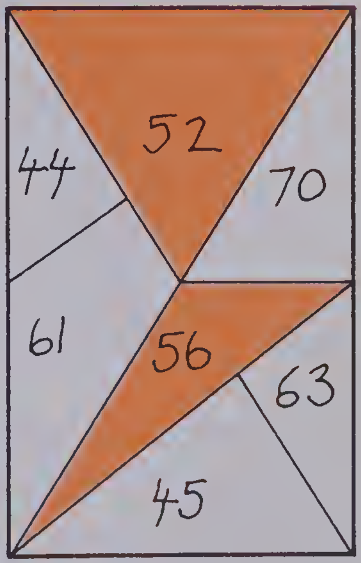
4. Draw large gameboards like these on 2 sheets of paper.

Toss a counter onto each gameboard.

Add the numbers on which your counters land.

Then subtract the numbers.





Multiplication and Division

Do you know the multiplication facts to 10 × 10 well enough?
Do you know the division facts to 100 ÷ 10 well enough?
Do these exercises to check yourself. The answers are on page 305.

5. Multiplying by 10 is easy.

a) 1 × 10
b) 5 × 10
c) 7 × 10
d) 2 × 10

6. Dividing by 10 is easy, too!

a) 10 ÷ 10
b) 20 ÷ 10
c) 70 ÷ 10
d) 90 ÷ 10

7. Multiply. Think the answers.

a)

Number Pair	Answer
(4,7)	
(5,9)	
(6,8)	
(7,3)	
(9,7)	
(6,6)	

b)

Number Pair	Answer
(4,9)	
(7,6)	
(8,8)	
(7,7)	
(9,3)	
(8,4)	

c)

Number Pair	Answer
(6,5)	
(7,8)	
(7,5)	
(9,9)	
(3,8)	
(8,9)	

8. Divide. Think the answers.

a)

Number Pair	Answer
(32,4)	
(49,7)	
(45,5)	
(54,9)	
(18,3)	
(64,8)	

b)

Number Pair	Answer
(35,5)	
(81,9)	
(42,7)	
(36,4)	
(16,8)	
(21,3)	

c)

Number Pair	Answer
(36,6)	
(56,7)	
(72,9)	
(100,10)	
(50,5)	
(40,8)	

9. Check your answers for Questions 7 and 8.
Make a list of the facts you should practise.
The chart you made for page 148 will help you review the facts.

Geometry and Measurement

10. a) What kind of figure is **ACDF**?

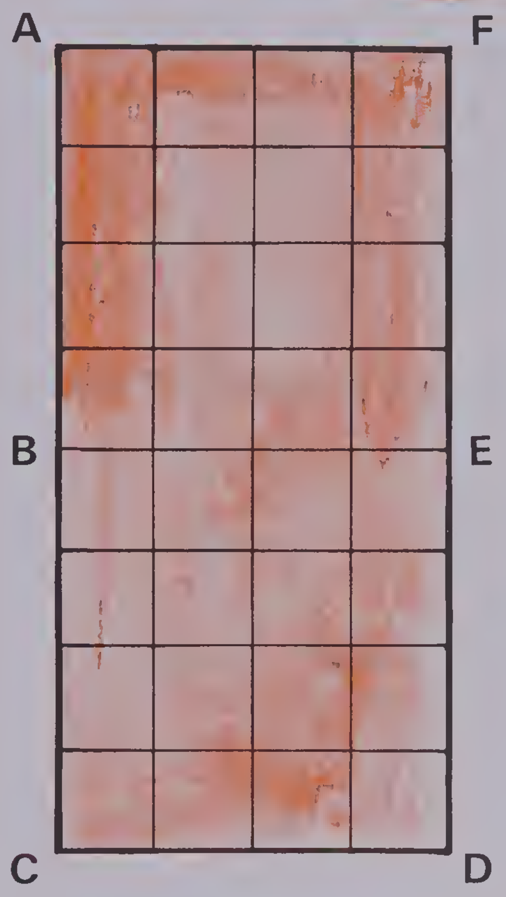
    b) Find its perimeter and area.

    c) What kind of figure is **ABEF**?

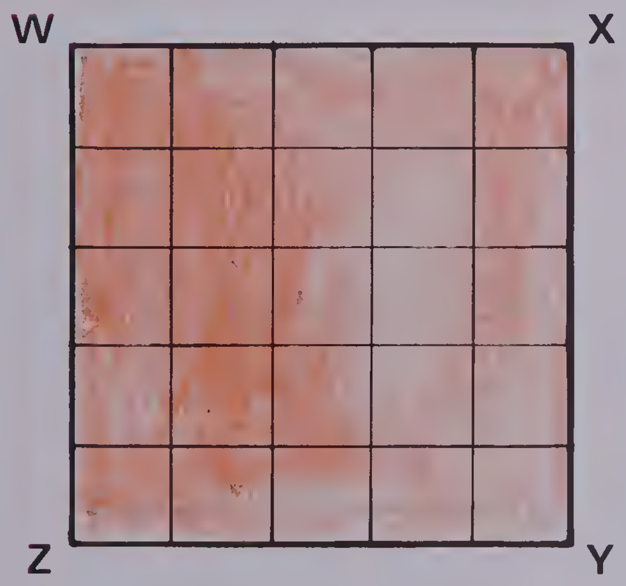
    d) Find i) the perimeter of **ABEF**,
       ii) the area of **ABEF**.

    e) Now find the perimeter and area of **BCDE**.

    f) What do you discover about the shape?



11.



a) Find the perimeter and area of the square.

b) Imagine that you joined points **W** and **Y**.
What kind of figure would **WYZ** be?

c) Find i) the perimeter of **WYZ**,
ii) the area of **WYZ**.

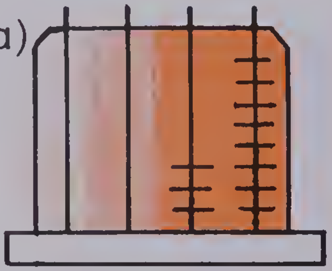
d) What do you think the perimeter
and area of **WXY** would be?

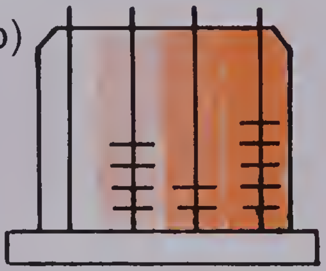
12. Use the circles on your *mathways* ruler to make clock faces.
Show the times.
Then, tell the time that is 20 minutes earlier.

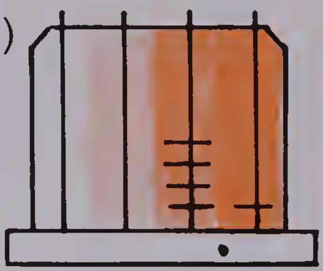
a) 4:35
b) 6:10
c) 10:20
d) 1:05
e) 7:55
f) 12:00
g) 2:40
h) 9:15
i) 11:30
j) 8:50

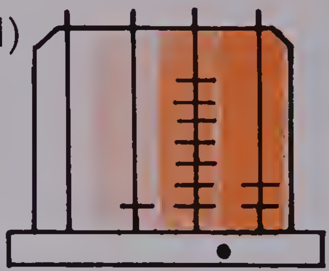
Place Value and Decimals

13. Write the numerals.
Watch the decimal point!

a) 

b) 

c) 

d) 

14. Write the long form of the numbers.

a) 72 c) 178 e) 6.3

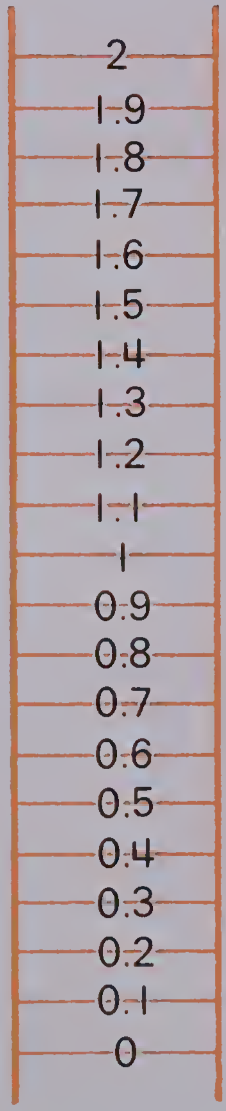
b) 45 d) 861 f) 41.7

15. Write the meaning of the numbers.

a) 59 c) 243 e) 5.4

b) 26 d) 537 f) 78.9

16. Draw a ladder like this one.



a) Place a marker on 0.3. Move up 6 rungs.
Where did you stop? Write an addition sentence.

b) Place a marker on 0.9. Move down 4 rungs.
Where did you stop? Write a subtraction sentence.

17. Use your ladder to help you complete the chart.

Start	Move	Stop	Sentence
0.2	↑ 5		0.2 + 0.5 = ?
0	↑ 8		
0.8	↓ 3		0.8 − 0.3 = ?
1.4	↓ 5		
1.3	↑ 7		
1.2	↓ 6		
0.3		1	
	↓ 2	0.9	

Answers to Further Practice, Unit 2

1. 83, 87, 95, 84, 82, 93, 96, 80

   564, 690, 463, 995, 774, 990, 692, 791

2. 36, 18, 59, 15, 28, 14, 47, 55

3. 619, 324, 418, 238, 526, 748

5. a) 10 b) 50 c) 70 d) 20

6. a) 1 b) 2 c) 7 d) 9

7. a) 28, 45, 48, 21, 63, 36
   b) 36, 42, 64, 49, 27, 32
   c) 30, 56, 35, 81, 24, 72

8. a) 8, 7, 9, 6, 6, 8
   b) 7, 9, 6, 9, 2, 7
   c) 6, 8, 8, 10, 10, 5

10. a) rectangle

    b) Perimeter = 24 cm
    Area = 32 cm^2

    c) square

    d) i) Perimeter = 16 cm

    ii) Area = 16 cm^2

    e) Perimeter = 16 cm
    Area = 16 cm^2

    f) Square **ABEF** and square **BCDE** have the same perimeter and area.
    The area of square **ABEF** is half the area of rectangle **ACDF**.

11. a) The perimeter is 20 cm.
    The area is 25 cm^2.

    b) triangle

    c) The perimeter measures 17 cm.
    (Measure **WY**.)
    The area is 12.5 cm^2.

    d) The same as the perimeter and the area of triangle **WYZ**.

12. a) 4:15
    b) 5:50
    c) 10:00
    d) 12:45
    e) 7:35
    f) 11:40
    g) 2:20
    h) 8:55
    i) 11:10
    j) 8:30

13. a) 38
    b) 425
    c) 4.1
    d) 17.2

14. a) 70 + 2
    b) 40 + 5
    c) 100 + 70 + 8
    d) 800 + 60 + 1
    e) 6 + 0.3
    f) 40 + 1 + 0.7

15. a) 5 tens and 9

    b) 2 tens and 6

    c) 2 hundreds, 4 tens, and 3

    d) 5 hundreds, 3 tens, and 7

    e) 5, and 4 tenths

    f) 7 tens, 8, and 9 tenths

16. a) 0.9, 0.3 + 0.6 = 0.9
    b) 0.5, 0.9 − 0.4 = 0.5

17.

Start	Move	Stop	Sentence
0.2	↑ 5	**0.7**	0.2 + 0.5 = **0.7**
0	↑ 8	**0.8**	**0 + 0.8 = 0.8**
0.8	↓ 3	**0.5**	0.8 − 0.3 = **0.5**
1.4	↓ 5	**0.9**	**1.4 − 0.5 = 0.9**
1.3	↑ 7	**2**	**1.3 + 0.7 = 2.0**
1.2	↓ 6	**0.6**	**1.2 − 0.6 = 0.6**
0.3	↑ 7	1	**0.3 + 0.7 = 1.0**
1.1	↓ 2	0.9	**1.1 − 0.2 = 0.9**

Further Practice, Unit 3

Addition and Subtraction

Can you exchange 10 for 1 and 1 for 10 well enough?
The answers to these questions are on page 310.

1. Add.

36	79	53	15	679	908	247	529
47	16	29	38	314	36	438	47

2. Subtract.

47	84	45	36	362	478	593	754
39	17	18	19	105	139	87	218

3. Add.

354	493	621	786	375	196	293	581
162	145	195	152	272	341	466	371

4. Subtract.

638	757	946	269	437	673	845	928
147	263	392	73	154	581	375	647

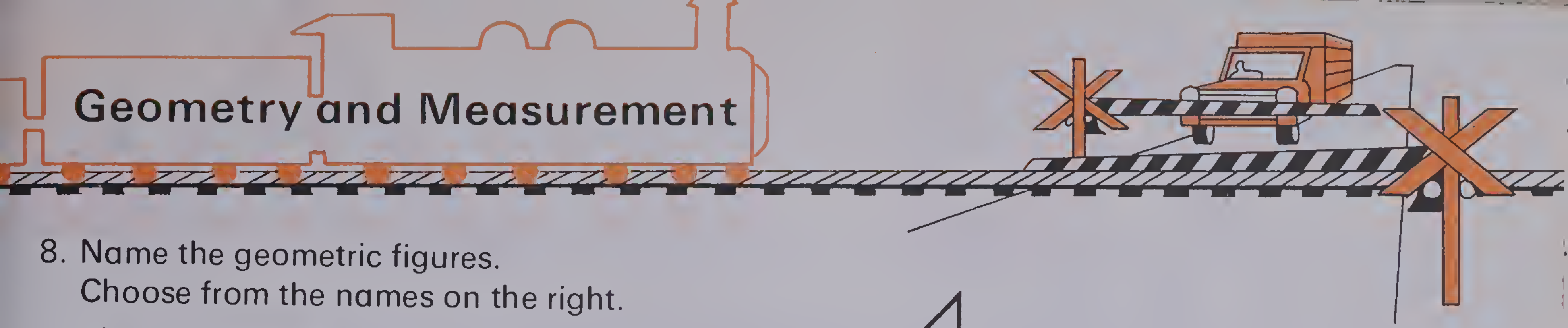
5. Add. Think the exchanges.

675	397	721	285	469	199	248	574
148	459	89	656	83	522	693	296

6. Subtract. Think the exchanges.

432	781	524	865	374	283	452	324
364	586	396	277	96	85	186	145

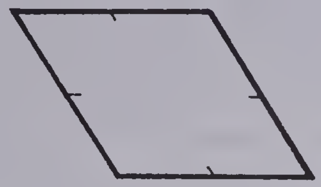
7. If you are not happy with your work on this page,
use an abacus to practise exchanging.
Then try Questions 5 and 6 again.



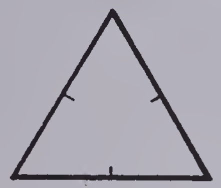
Geometry and Measurement

8. Name the geometric figures.
Choose from the names on the right.

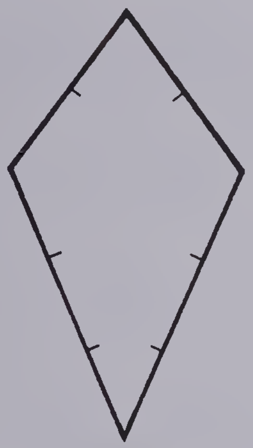
a)



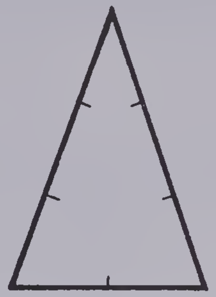
b)



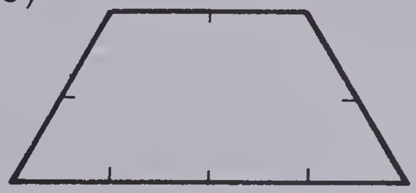
c)



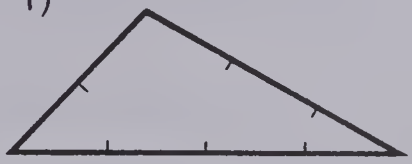
d)



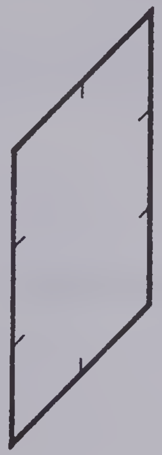
e)



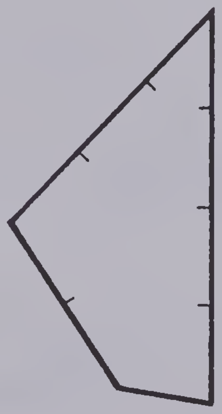
f)



g)



h)

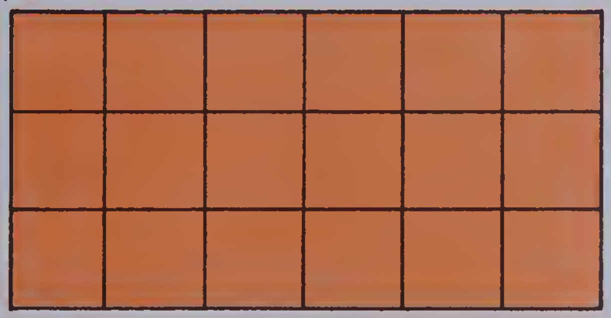


circle
hexagon
parallelogram
rhombus
equilateral triangle
rectangle
pentagon
trapezium
square
octagon
kite
scalene triangle
decagon
irregular quadrilateral
isosceles triangle

9. Find the perimeter of each figure in Question 8.

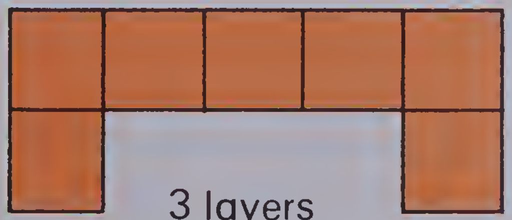
10. Find the area of each pattern.
If you built layers of 1 cm cubes on each pattern, what would the volume be?

a)



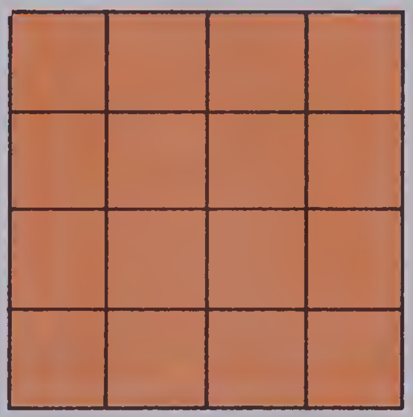
2 layers

b)



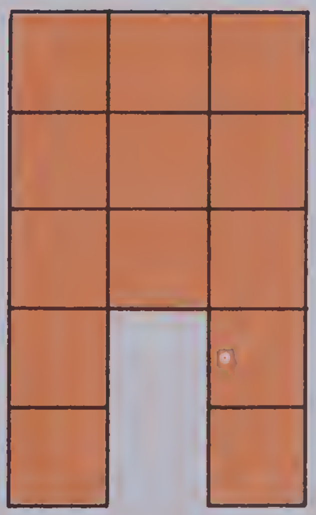
3 layers

c)

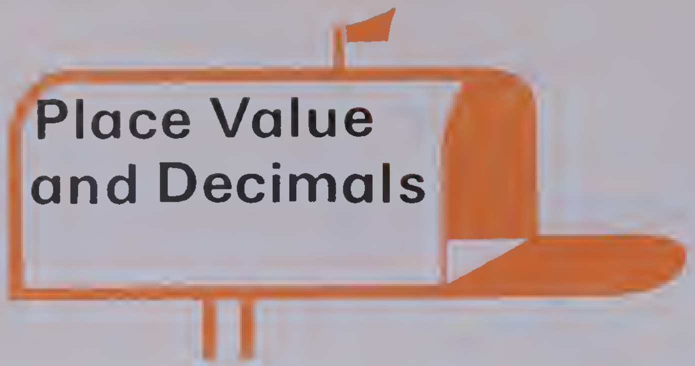


4 layers

d)



5 layers



Place Value and Decimals

It is important that you understand the meaning of numbers.
Check your own work.
The answers are on page 310.

11. Write the long form of the numbers.

a) 1.05	b) 0.27	c) 0.93
d) 7.58	e) 4.16	f) 39.61

12. Write the meaning of the numbers.

a) 0.04	b) 0.47	c) 0.76
d) 5.31	e) 52.78	f) 241.63

13. Write the numerals.

a) 2 hundredths
b) 6 tenths and 8 hundredths
c) 8, 3 tenths, and 8 hundredths
d) 6 tens, 7, 8 tenths, and 1 hundredth
e) 0.9 + 0.06
f) 2 + 0.1 + 0.09

14. Add.
Be sure to line up the decimal point in the answer with the decimal points in the question.

0.4	0.6	0.3	0.8	0.2	0.8	0.9	0.6	0.7	0.8
0.5	0.2	0.5	0.1	0.7	0.5	0.3	0.5	0.7	0.7

15. Subtract.

0.6	0.8	0.7	0.9	0.5	1.5	3.6	4.4	3.2	1.7
0.5	0.4	0.2	0.5	0.3	0.6	0.8	0.7	0.5	0.9

16. Add. Think the answers.

3.6	Think	5.8	7.9	6.4	3.5	2.7	1.8	7.5
4.7	13 5,8	2.3	1.6	2.7	3.8	4.7	6.9	1.6

17. Subtract. Think the answers.

9.6	Think 16,9	3.2	4.3	6.4	4.2	4.7	5.8	9.3
3.7	8,5	1.7	2.9	3.8	2.6	2.9	1.9	8.4

Multiplication, Division, Money

Do you remember the multiplication and division facts?

18. Solve.

a) $n = 8 \times 5$
$n = ?$

b) $r = 6 \times 9$
$r = ?$

c) $k = 8 \times 10$
$k = ?$

d) $e = 10 \times 6$
$e = ?$

e) $b = 2 \times 8$
$b = ?$

f) $s = 7 \times 2$
$s = ?$

g) $j = 3 \times 9$
$j = ?$

h) $m = 10 \times 10$
$m = ?$

i) $\ell = 7 \times 4$
$\ell = ?$

j) $q = 5 \times 7$
$q = ?$

k) $u = 8 \times 3$
$u = ?$

l) $f = 9 \times 8$
$f = ?$

19. Solve.

a) $g = 30 \div 3$
$g = ?$

b) $i = 0 \div 2$
$i = ?$

c) $c = 27 \div 9$
$c = ?$

d) $w = 12 \div 2$
$w = ?$

e) $a = 18 \div 9$
$a = ?$

f) $z = 63 \div 9$
$z = ?$

g) $v = 36 \div 9$
$v = ?$

h) $y = 16 \div 2$
$y = ?$

i) $h = 72 \div 8$
$h = ?$

j) $p = 30 \div 6$
$p = ?$

k) $d = 9 \div 9$
$d = ?$

l) $o = 100 \div 2$
$o = ?$

20. Use your answers to Questions 18 and 19 to make up a secret message.
Ask a friend to find the message.

21. Find the total amount.

\$6.23	\$0.54	\$5.65	\$3.92	\$2.28	\$3.85	\$8.35
0.44	1.35	3.33	5.07	4.51	6.12	1.44

22. Find the difference in amount.

\$8.92	\$5.50	\$4.95	\$9.43	\$1.63	\$2.65	\$7.65
0.60	4.40	3.25	5.22	0.50	2.45	0.43

23. Are you pleased with your work in Questions 21 and 22?
If not, use play money to practise adding and subtracting.

Answers to Further Practice, Unit 3

1. 83, 95, 82, 53, 993, 944, 685, 576

2. 8, 67, 27, 17, 257, 339, 506, 536

3. 516, 638, 816, 938, 647, 537, 759, 952

4. 491, 494, 554, 196, 283, 92, 470, 281

5. 823, 856, 810, 941, 552, 721, 941, 870

6. 68, 195, 128, 588, 278, 198, 266, 179

8. a) rhombus
   b) equilateral triangle
   c) kite
   d) isosceles triangle
   e) trapezium
   f) scalene triangle
   g) parallelogram
   h) irregular quadrilateral

9. a) 8 cm c) 10 cm e) 10 cm g) 10 cm
   b) 6 cm d) 8 cm f) 9 cm h) 10 cm

10. a) The area is 18 cm^2. The volume is 36 cm^3.

    b) The area is 7 cm^2. The volume is 21 cm^3.

    c) The area is 16 cm^2. The volume is 64 cm^3.

    d) The area is 13 cm^2. The volume is 65 cm^3.

11. a) $1 + 0.05$
    b) $0.2 + 0.07$
    c) $0.9 + 0.03$
    d) $7 + 0.5 + 0.08$
    e) $4 + 0.1 + 0.06$
    f) $30 + 9 + 0.6 + 0.01$

12. a) 4 hundredths

    b) 4 tenths and 7 hundredths

    c) 7 tenths and 6 hundredths

    d) 5, 3 tenths, and 1 hundredth

    e) 5 tens, 2, 7 tenths, and 8 hundredths

    f) 2 hundreds, 4 tens, 1, 6 tenths, and 3 hundredths

13. a) 0.02 b) 0.68 c) 8.38 d) 67.81 e) 0.96 f) 2.19

14. 0.9, 0.8, 0.8, 0.9, 0.9, 1.3, 1.2, 1.1, 1.4, 1.5

15. 0.1, 0.4, 0.5, 0.4, 0.2, 0.9, 2.8, 3.7, 2.7, 0.8

16. 8.3, 8.1, 9.5, 9.1, 7.3, 7.4, 8.7, 9.1

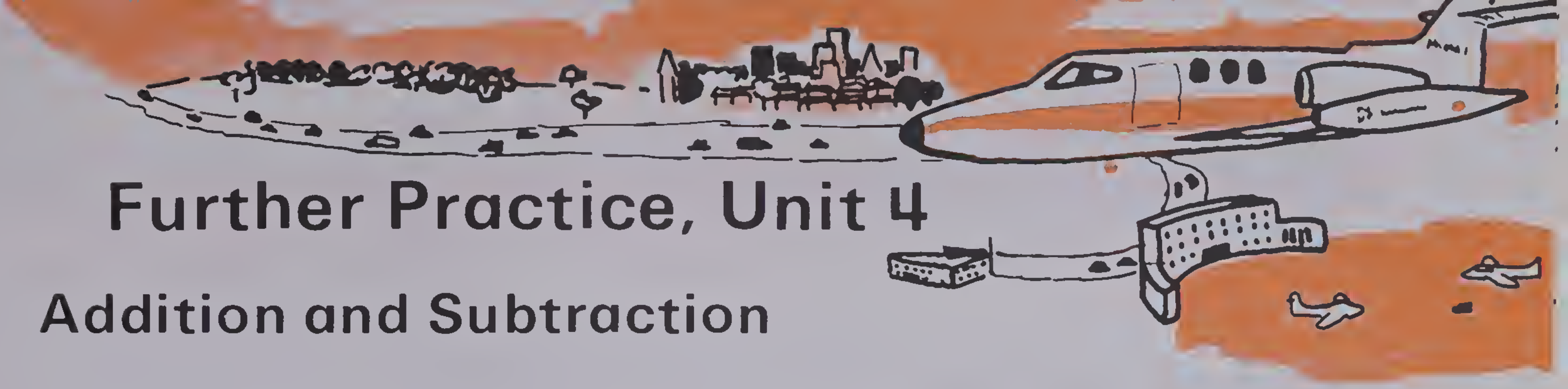
17. 5.9, 1.5, 1.4, 2.6, 1.6, 1.8, 3.9, 0.9

18. a) $n = 40$ d) $e = 60$ g) $j = 27$ j) $q = 35$
    b) $r = 54$ e) $b = 16$ h) $m = 100$ k) $u = 24$
    c) $k = 80$ f) $s = 14$ i) $\ell = 28$ l) $f = 72$

19. a) $g = 10$ d) $w = 6$ g) $v = 4$ j) $p = 5$
    b) $i = 0$ e) $a = 2$ h) $y = 8$ k) $d = 1$
    c) $c = 3$ f) $z = 7$ i) $h = 9$ l) $o = 50$

21. \$6.67, \$1.89, \$8.98, \$8.99, \$6.79, \$9.97, \$9.79

22. \$8.32, \$1.10, \$1.70, \$4.21, \$1.13, \$0.20, \$7.22



Further Practice, Unit 4

Addition and Subtraction

Do you remember how to exchange 10 for 1 with decimals?
The answers are on page 315.

1. Add.

0.47	0.29	0.38	4.16	2.04	3.05	2.59
0.38	0.17	0.15	1.36	7.58	2.69	5.38

2. Subtract.

0.63	0.75	0.36	5.27	9.64	8.52	6.81
0.47	0.36	0.19	4.18	5.18	1.34	2.65

3. Add.

0.72	0.57	0.84	2.53	3.47	7.96	2.79
0.58	0.48	0.99	1.77	2.58	0.45	6.56

4. Subtract.

3.43	9.54	7.32	8.15	2.32	6.61	5.26
0.58	0.67	0.54	2.77	1.05	3.65	4.57

5. Add.

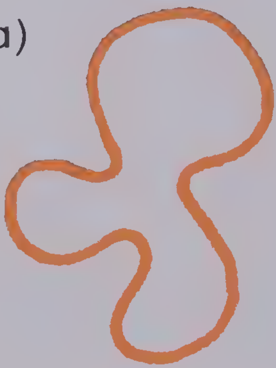
0.5	0.6	0.3	0.7	0.6	0.4	0.9
0.7	0.5	0.8	0.6	0.8	0.7	0.7
0.4	0.4	0.6	0.9	0.9	0.9	0.5

6. Add.

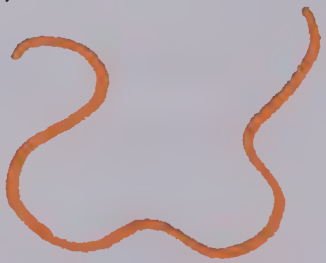
3.5	2.9	3.7	5.3	2.8	8.2	1.8
4.6	1.1	3.5	4.1	3.4	3.7	9.4
1.2	4.4	2.4	8.9	5.5	4.8	3.6

7. Which curves are open? Which curves are closed?

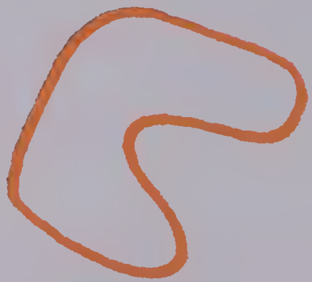
a)



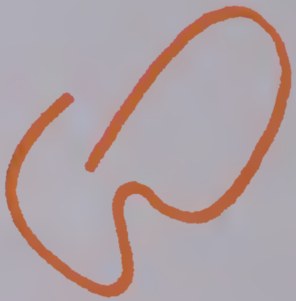
c)



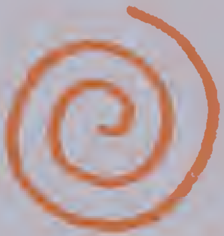
e)



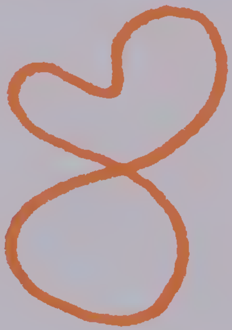
g)



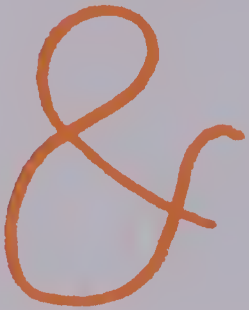
b)



d)



f)



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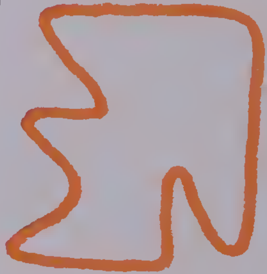
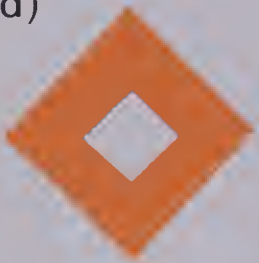
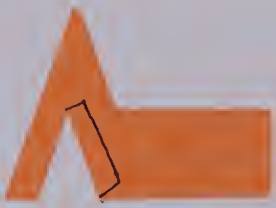


8. Which pictures are symmetrical? Trace them and draw the lines of symmetry.

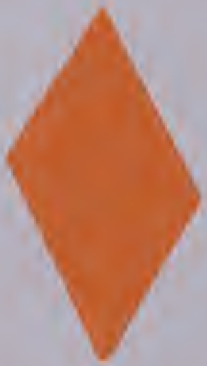
a)



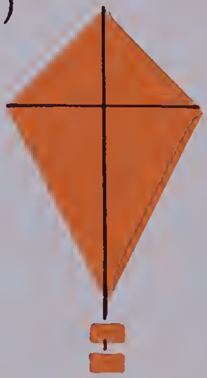
b)



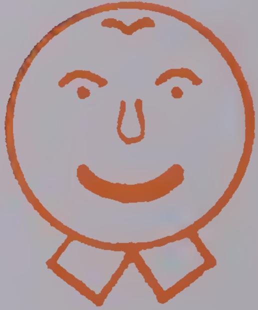
c)



d)



e)



9. Use paper marked into 1 cm squares to make a pattern for a 6 cm cube.
What is the area of 1 face of the cube?
What is the area of the pattern?

10. Play a game with a friend.
Think of something in your classroom that looks like a 3-dimensional model.
Give your partner a clue, like "It bounces".
Your partner names the object and the model: "A ball. Sphere."
Take turns thinking up a secret model.

Multiplication and Division

11. Multiply. Remember the short form.

a) $\begin{array}{r}15\\4\\\hline\end{array}$ Think 20 4,6 b) $\begin{array}{r}17\\5\\\hline\end{array}$ c) $\begin{array}{r}19\\3\\\hline\end{array}$ d) $\begin{array}{r}22\\6\\\hline\end{array}$ e) $\begin{array}{r}18\\7\\\hline\end{array}$ f) $\begin{array}{r}21\\8\\\hline\end{array}$

12. Divide. How many sets?

a) $6\overline{)96}$ b) $8\overline{)104}$ c) $9\overline{)108}$ d) $7\overline{)98}$ e) $5\overline{)95}$ f) $4\overline{)60}$

13. Multiply.

a) $\begin{array}{r}27\\4\\\hline\end{array}$ Think 28 8,10 b) $\begin{array}{r}31\\6\\\hline\end{array}$ c) $\begin{array}{r}29\\5\\\hline\end{array}$ d) $\begin{array}{r}33\\8\\\hline\end{array}$ e) $\begin{array}{r}27\\9\\\hline\end{array}$ f) $\begin{array}{r}38\\3\\\hline\end{array}$

14. Divide.

a) $6\overline{)144}$ Try 6 × 20 b) $4\overline{)188}$ c) $7\overline{)273}$ d) $9\overline{)279}$ e) $8\overline{)184}$ f) $5\overline{)215}$

15. Divide. What is the remainder?

a) $8\overline{)259}$ Try 8 × 30 b) $5\overline{)263}$ c) $6\overline{)157}$ d) $4\overline{)198}$ e) $7\overline{)365}$ f) $9\overline{)560}$

16. Multiply by 10.
a) 19 b) 27 c) 31 d) 14 e) 0.7 f) 0.1 g) 0.5 h) 0.4

17. Multiply by 100.
a) 2 b) 5 c) 10 d) 20 e) 25 f) 31 g) 42 h) 56

18. Multiply by 1000.
a) 5 b) 7 c) 3 d) 2 e) 4 f) 9 g) 1 h) 10

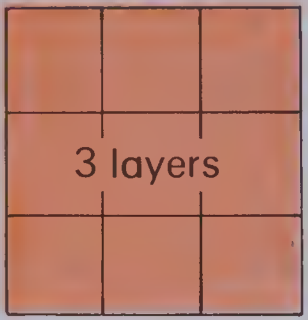
19. Multiply by 10.
a) 2.5 b) 3.1 c) 5.4 d) 6.9 e) 7.8 f) 12.5 g) 14.6 h) 17.2

Measurement

RESTAURANT
BUS STOP

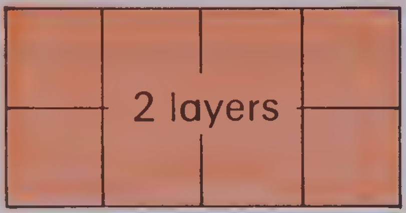
For each shape, find :
- a) the perimeter,
- b) the area,
- c) the volume of the cube or rectangular prism built on it.

20.



a) Perimeter = ? cm
b) Area = ? cm^2
c) Volume = ? cm^3

21.



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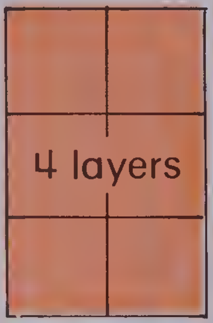

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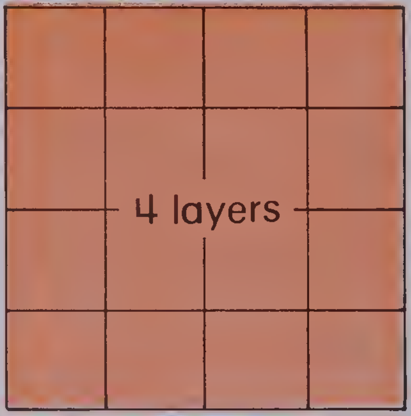
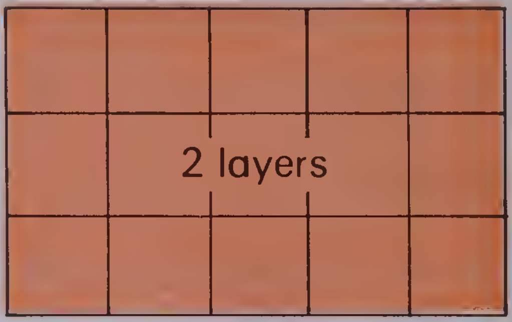
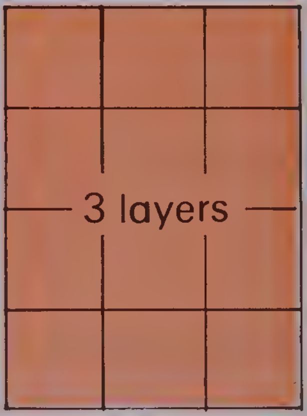


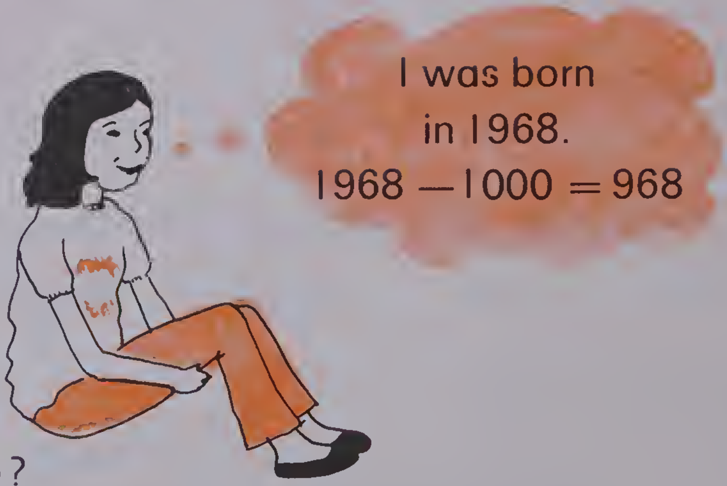
24.



25.



26. Find the surprise answer.
Start with the year you were born.
Subtract 1000.
Subtract 900.
Multiply by 2.
Add 800.
Divide by 2.
Add 1500.
What's the answer?


I was born in 1968. 1968 — 1000 = 968

27. What units would you use to measure these?

- a) your mass
- b) your height
- c) the length of your room
- d) the amount of milk you drink in a week
- e) the distance you travel to school
- f) today's temperature

Answers to Further Practice, Unit 4

1. 0.85, 0.46, 0.53, 5.52, 9.62, 5.74, 7.97

2. 0.16, 0.39, 0.17, 1.09, 4.46, 7.18, 4.16

3. 1.30, 1.05, 1.83, 4.30, 6.05, 8.41, 9.35

4. 2.85, 8.87, 6.78, 5.38, 1.27, 2.96, 0.69

5. 1.6, 1.5, 1.7, 2.2, 2.3, 2.0, 2.1

6. 9.3, 8.4, 9.6, 18.3, 11.7, 16.7, 14.8

7. open : b), c), f), g)
closed : a), d), e), h)

8. symmetrical : a), d), e)

9. Area of 1 face : 36 cm^2
Area of pattern : 216 cm^2

11. a) 60 b) 85 c) 57 d) 132 e) 126 f) 168

12. a) 16 b) 13 c) 12 d) 14 e) 19 f) 15

13. a) 108 b) 186 c) 145 d) 264 e) 243 f) 114

14. a) 24 b) 47 c) 39 d) 31 e) 23 f) 43

15. a) 32R3 c) 26R1 e) 52R1
b) 52R3 d) 49R2 f) 62R2

16. a) 190 c) 310 e) 7 g) 5
b) 270 d) 140 f) 1 h) 4

17. a) 200 c) 1000 e) 2500 g) 4200
b) 500 d) 2000 f) 3100 h) 5600

18. a) 5000 c) 3000 e) 4000 g) 1000
b) 7000 d) 2000 f) 9000 h) 10 000

19. a) 25 c) 54 e) 78 g) 146
b) 31 d) 69 f) 125 h) 172

20. a) Perimeter = 12 cm
b) Area = 9 cm^2
c) Volume = 27 cm^3

21. a) Perimeter = 12 cm
b) Area = 8 cm^2
c) Volume = 16 cm^3

22. a) Perimeter = 10 cm
b) Area = 6 cm^2
c) Volume = 24 cm^3

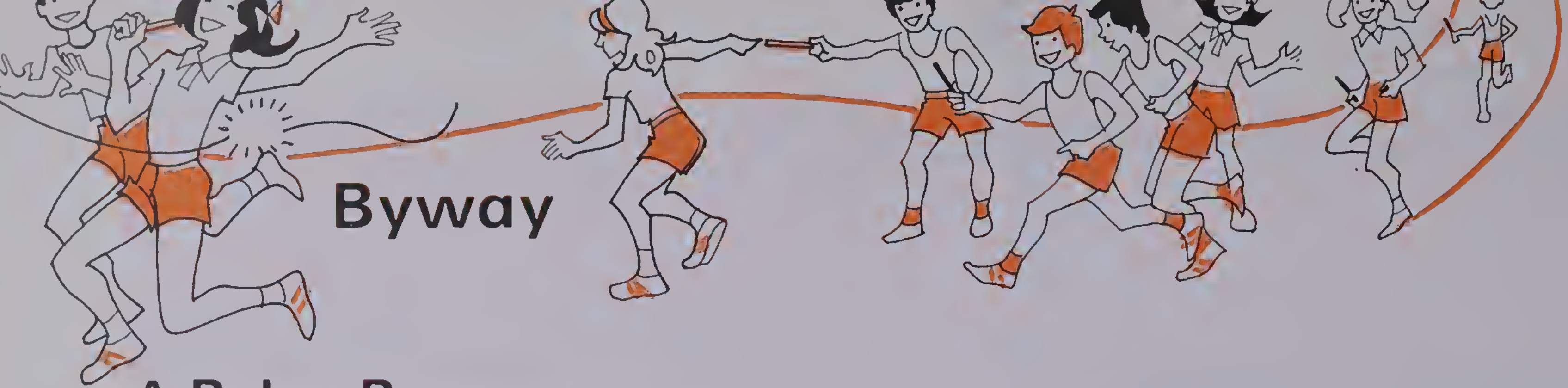
23. a) Perimeter = 16 cm
b) Area = 16 cm^2
c) Volume = 64 cm^3

24. a) Perimeter = 16 cm
b) Area = 15 cm^2
c) Volume = 30 cm^3

25. a) Perimeter = 14 cm
b) Area = 12 cm^2
c) Volume = 36 cm^3

26. The answer is the year you were born.

27. a) kilograms d) litres
b) centimetres e) kilometres
c) metres f) degrees Celsius



Byway

A Relay Race

3 or 4 children in your group can race against some children in another group.
You will need 2 copies of this page — 1 for each team.
Choose a "runner" from each team to start.
The first runner answers as many questions as he can.
When he makes a mistake, the second runner starts at that question.
The first team to finish the race wins.

START

Add. (7, 12)

Solve. $18 - k = 9$ $k = ?$

20 minutes earlier than 3:15

Shapes of faces on a square pyramid

> or < ? 15 ? 20 − 4

Multiply. $\begin{array}{r}4\\ \underline{5}\end{array}$

Divide. (12,3)

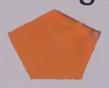
$0.3 = \frac{?}{10}$

$1 = 1 fifty-cent piece + 1 quarter + ? dimes + 1 nickel

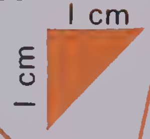
$592 = 500 + ? + ?$

627 means ?

Name the figure.



Area?



Add. $\begin{array}{r}0.2\\ \underline{0.7}\end{array}$

Subtract. $\begin{array}{r}0.8\\ \underline{0.3}\end{array}$

$4.71 = 4 + 0.7 + ?$

5.28 means ?

13 minutes later than 7:08

Multiply. (8,7)

Divide. $9\overline{)54}$

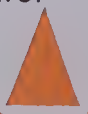
Add. $\begin{array}{r}23\\ \underline{48}\end{array}$

Subtract. $\begin{array}{r}182\\ \underline{57}\end{array}$

Subtract. $\begin{array}{r}531\\ \underline{294}\end{array}$

Add. $\begin{array}{r}163\\ \underline{549}\end{array}$

Name the figure.



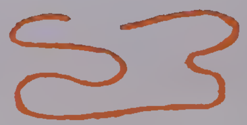
Total amount? $\begin{array}{r}\$\ 5.24\\ \underline{13.35}\end{array}$

Subtract. $\begin{array}{r}5.3\\ \underline{2.8}\end{array}$

Odd or even? Number of toes on 1 foot.

Add. $\begin{array}{r}6.5\\ \underline{1.9}\end{array}$

Open or closed?



FINISH

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Two-digit numbers **19**, **21**, 25, 82, 83, **98**, **99**, 288, 304
Two-dimensional shapes
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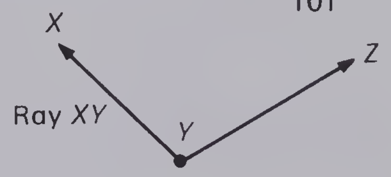
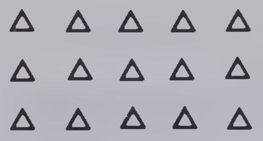
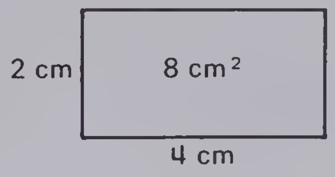
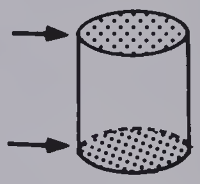
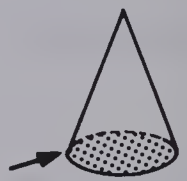
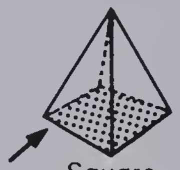
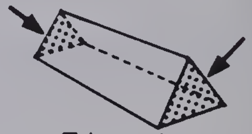
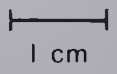
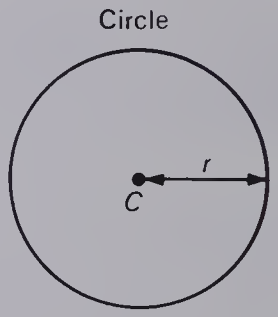
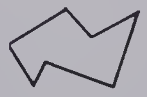
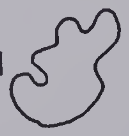
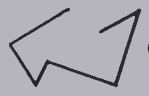
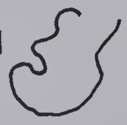
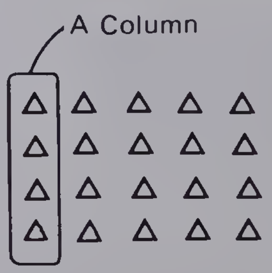
  cubic centimetres **205–207**, 211, 222, 242, 243, **262–265**, **268**, **272–275**, 307, 314

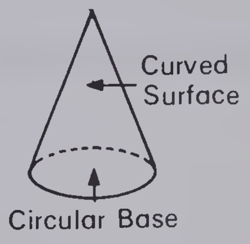
Years **295**

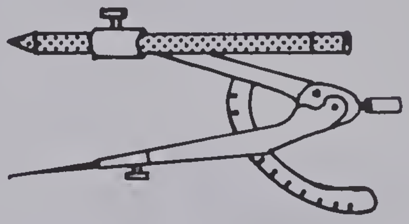
Mathematics Dictionary

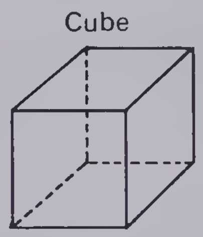
Addends	Numbers which are to be added.	$\underbrace{2+6+11}_{\text{Addends}} = \underbrace{19}_{\text{Sum}}$
Addition	An operation which combines 2 addends.	
Algorithm	A method for carrying out an operation.	Addition Algorithm $\begin{array}{r} 27 \\ 74 \\ \hline 101 \end{array}$
Angle (∠)	2 rays with a common end point.	 Angle *XYZ* (∠ *XYZ*)
Anti-Clockwise	See *Counter-Clockwise*.	
Approximately Equal	About. 1.9 × 9 is about 2 × 10 or 20.	
Array	A rectangular arrangement in rows and columns.	An Array 
Area	An amount of surface.	
Area Expressions	$\text{Area} = (2 \times 4)\ \text{cm}^2$ $= 8\ \text{cm}^2$	Rectangle 
Associative (Grouping) Property	When 3 addends or factors are to be added or multiplied, any 2 may be added or multiplied first. $(3+2)+5=3+(2+5)$ $(3\times 2)\times 5=3\times(2\times 5)$	

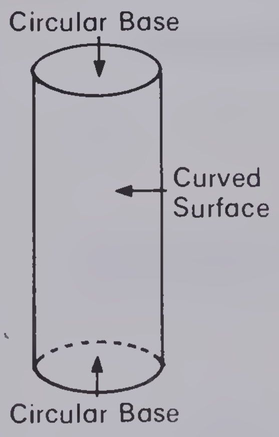
Base (of a Solid)	The faces indicated are bases of the illustrated solids.	 Cylinder  Cone
Base (of a Triangle)	Any side of a triangle.	 Square Pyramid  Triangular Prism
Centimetre (cm)	A unit of length equal to one hundredth of a metre. $1 \text{ cm} = \frac{1}{100} \text{ m}$ $= 0.01 \text{ m}$	
Circle	The set of points in a plane at a fixed distance (radius, *r*) from a given point (centre, *C*).	
Circumference	The perimeter of (distance around) a circle.	
Clockwise	The direction of rotation of the hands of a clock.	
Closed Figure (Curve)	 and  are closed figures.  and  are not closed figures.	
Column	Items arranged in a vertical line.	
Compass	An instrument used to indicate the direction of the North magnetic pole.	

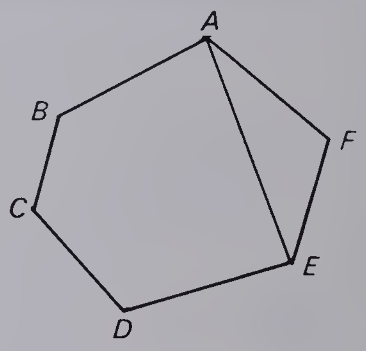
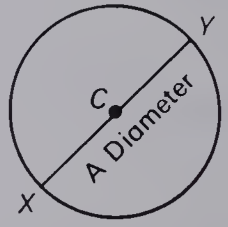
Cone	A 3-dimensional figure with 1 circular base and 1 curved surface.
Compasses (Pair of)	An instrument used in drawing of a circle.
Congruent Polygons	Polygons of the same size and shape.
Counter-Clockwise	The direction of rotation opposite to the direction of rotation of the hands of a clock.
Counting	Matching objects in a set with a subset of the natural numbers 1, 2, 3, 4, ...
Cube	A regular solid with 6 faces. Each face is a square.
Cylinder	A 3-dimensional figure with 2 circular bases and a curved surface.
Day (d)	A unit of time. 1 d = 24 h
Decagon	A polygon with 10 sides.
Decimal	A numeral in decimal notation. 0.5 is a decimal.
Decimal Numeration System	A place-value system based on powers of 10 (base 10) which represents numbers by using the 10 symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 as digits.



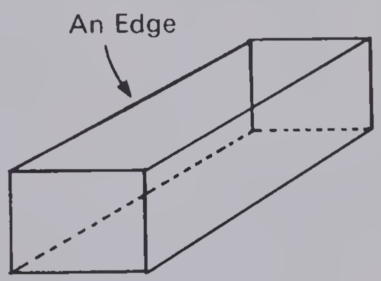


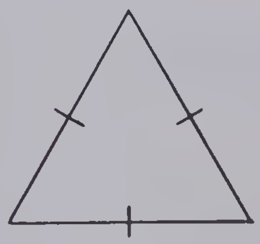


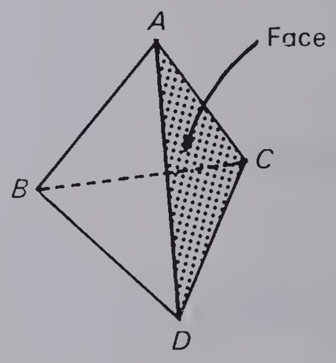


Decimal Place	The power of 10 associated with each position in a decimal numeral. In 172.03 1 is in the hundreds place 7 is in the tens place 2 is in the units (ones) place 0 is in the tenths place 3 is in the hundredths place	
Decimal Point	The dot in a decimal numeral between the units and tenths places.	
Denominator	10 is the denominator of the fraction $\frac{3}{10}$.	
Diagonal (of a Polygon)	A line segment whose end points are 2 vertices which are not consecutive. *AE* is a diagonal of polygon *ABCDEF*.	
Diameter	A line segment that passes through the centre of the circle and has its endpoints on the circle.	
Difference	The result of subtracting one number from another. 28 is the difference between 84 and 56.	$\begin{array}{r}84\\56\\\hline 28\end{array}$
Digits	The individual symbols used in a numeration system. The digits are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 for our base 10 system.	
Dimensions	The length and width of a plane (2-dimensional) figure. The length, width and height of a solid (3-dimensional) figure.	

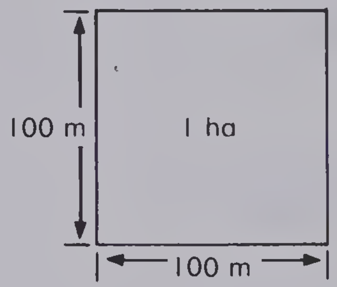
Dividend	3 Quotient Divisor 6)23 **Dividend** $23 = 6 \times 3 + 5$ 18 5 Remainder
Division	The undoing operation with respect to multiplication. *Multiplication* (doing) $3 \times 2 = 6$ *Division* (undoing) $6 \div 2 = 3$
Divisor	See *Dividend.*
Dodecagon	A polygon with 12 sides.
Edge (of a Solid)	The line segments formed where 2 faces of the solid meet. The rectangular prism has 12 edges.
Element (of a Set)	A member of a set.
Equals (=)	Has the same value as. 4 equals $1 + 1 + 2$ (that is, $4 = 1 + 1 + 2$)
Equilateral Triangle	A triangle with all sides of equal length.
Estimate	A calculation usually made by rounding off numbers to a multiple of a power of 10. 9×31 is about 10×30 or 300.

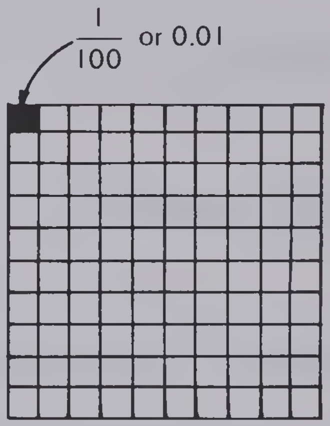



Equilateral Triangle

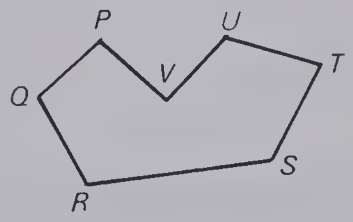
Even Number	An even number has 2 as a factor. $\{0, 2, 4, 6, \ldots\}$ is the set of even whole numbers.
Expanded Notation	$3124 = \underbrace{3(1000) + 1(100) + 2(10) + 4}_{\text{Expanded Notation}}$
Expression	2 or more numbers (or letter symbols for numbers) joined by operation symbols. $3 + 4$ is a number expression.
Face of a 3-D Figure	Triangular region *ADC* is one face of *ABCD*. 
Factor (of a Number)	$36 = 36 \times 1$ 36, 1 are factors of 36. $36 = 18 \times 2$ 18, 2 are factors of 36. $36 = 12 \times 3$ 12, 3 are factors of 36. $36 = 9 \times 4$ 9, 4 are factors of 36. $36 = 6 \times 6$ 6 is a factor of 36.
Fraction	A numeral in fractional notation. $\frac{3}{4}$ is a fraction.
Geometry	A study of shapes.
Gram (g)	A unit of mass equal to one thousandth of a kilogram. $1\ \text{g} = \frac{1}{1000}\ \text{kg}$ $= 0.001\ \text{kg}$
Graph	An illustration of information.

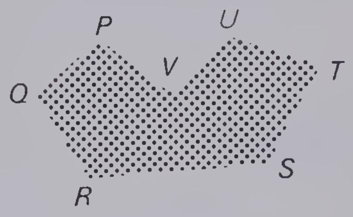
Greater Than (>)	7 is greater than 3 (that is, $7 > 3$).
Hectare (ha)	A unit of area. $1\ \text{ha} = 10\,000\ \text{m}^2$
Hexagon	A polygon with 6 sides.
Hour (h)	A unit of time. $1\ \text{h} = \frac{1}{24}\ \text{d}$ $24\ \text{h} = 1\ \text{d}$
Hundredth	One hundredth can be expressed as 0.01 or $\frac{1}{100}$.
Inequality	A mathematical sentence involving $>$ (is greater than) or $<$ (is less than).
Interior (of a Plane Figure)	The points inside the figure.
Isosceles Triangle	A triangle with 2 sides of equal length.
Kilogram (kg)	A unit of mass. $1\ \text{kg} = 1000\ \text{g}$
Kilometre (km)	A unit of length. $1\ \text{km} = 1000\ \text{m}$
Kilolitre (kL)	A unit of capacity. $1\ \text{kL} = 1000\ \text{L}$



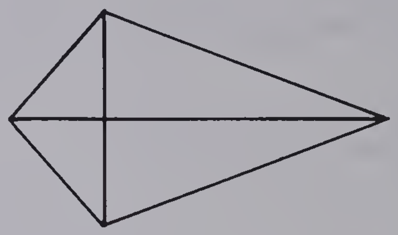
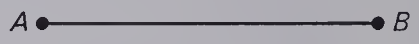
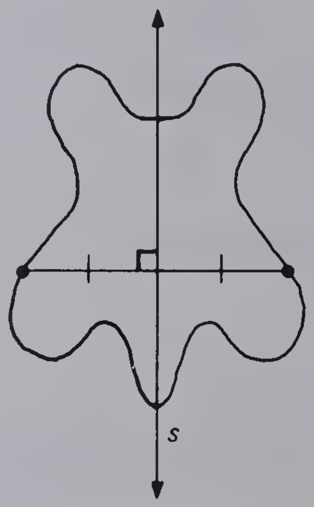
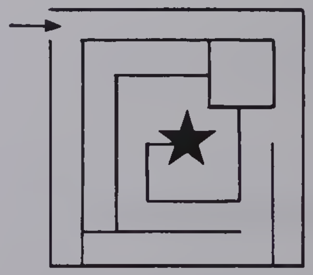


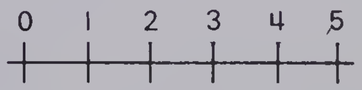
A Polygon



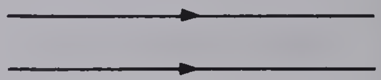


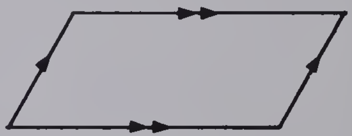
Its interior

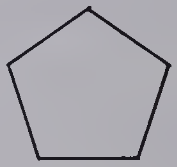
Kite	A quadrilateral with 1 diagonal bisected by the other.	
Length	A measurement that describes a line segment.	
Less Than	3 is less than 7 (that is, $3 < 7$).	
Litre (L)	A unit of capacity. 1 L = 1000 mL.	
Line Segment	Line Segment *AB*	
Line of Symmetry	If the figure is folded along the line *s*, the 2 parts of the figure coincide. The figure is symmetrical with respect to the line.	 Line of Symmetry
Mass	The amount of matter an object contains.	
Mathematics	The logical study of number, patterns, shape, and many related concepts.	
Maze	A network of paths.	A Maze 
Metre (m)	The basic unit of length in the metric system of measurement.	
Minute (min)	A unit of time. $1 \text{ min} = \frac{1}{60} \text{ h}$ $60 \text{ min} = 1 \text{ h}$	

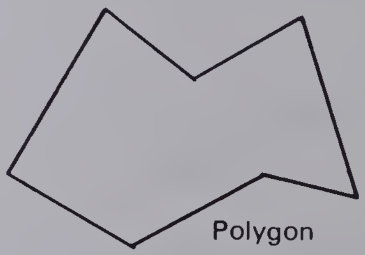
Millilitre (mL)	A unit of capacity equal to one thousandth of a litre. $1 \text{ mL} = \frac{1}{1000} \text{ L}$ $= 0.001 \text{ L}$
Millimetre (mm)	A unit of length equal to one thousandth of a metre. $1 \text{ mm} = \frac{1}{1000} \text{ m}$ $= 0.001 \text{ m}$
Multiplication	An operation which combines 2 factors.
***n*-gon**	A polygon with *n* sides.
Nonagon	A polygon with 9 sides.
Number Line	An illustration of a set of numbers.  Whole Number Line
Number Pair	Any pair of numbers.
Numeral	A symbol which represents a number.
Numerator	2 is the numerator of the fraction $\frac{2}{5}$.
Octagon	A polygon with 8 sides.

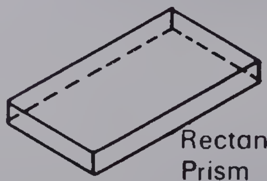
Odd Number	An odd number does not have 2 as a factor. {1, 3, 5, 7, . . .} is the set of odd whole numbers.
Ordered Pair	A pair of numbers in a specific order. The ordered pair (1, 2) has the opposite order to (2, 1).
Parallel Lines	Lines in the same plane with no points in common.
Parallelogram	A quadrilateral with both pairs of opposite sides parallel.
Pentagon	A polygon with 5 sides.
Perimeter	The distance around a figure.
Place Value	The value of a digit as a result of its place in a number. In 235, the place value of 2 is 2 × 100 or 200. In 325, the place value of 2 is 2 × 10 or 20.
Plane	A flat surface.
Plane Figure	A 2-dimensional figure in a plane.
Polygon	A closed plane figure in which each side is a line segment.
Prism	A 3-dimensional figure in which: — 2 bases are congruent polygons, — the other faces are parallelograms.

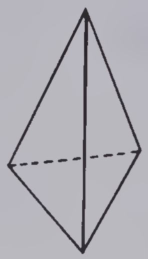
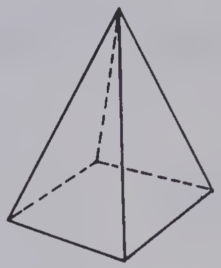
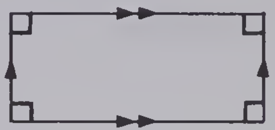
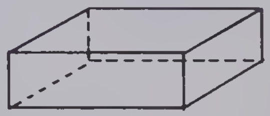
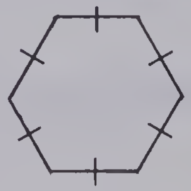
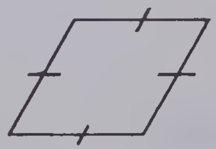
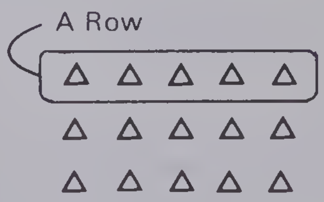

Parallel Lines

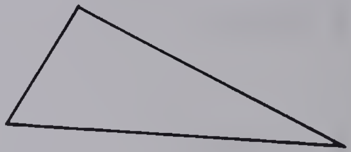
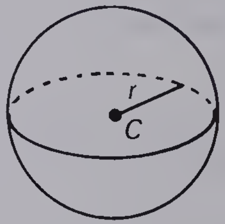
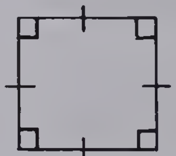
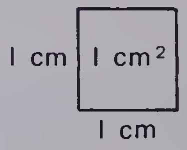
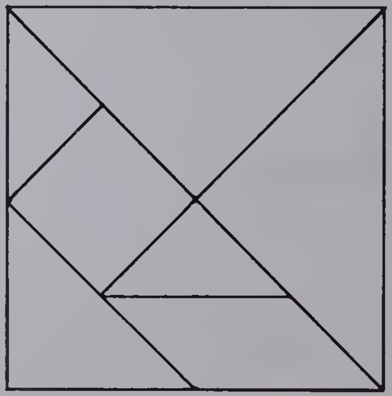

Parallelogram

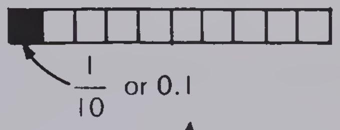
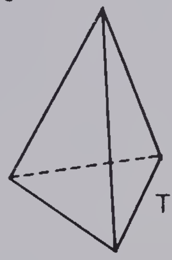
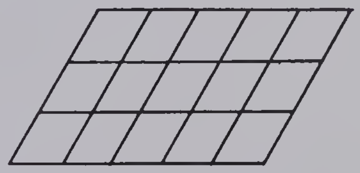
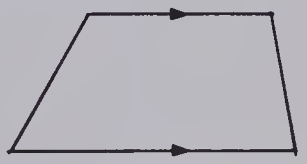
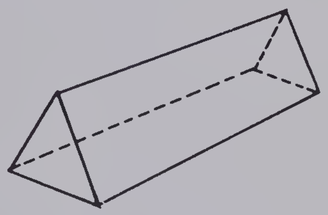
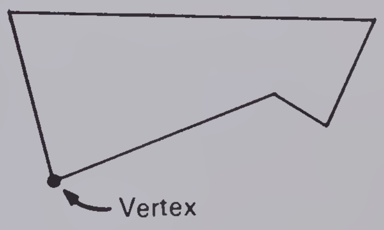

Pentagon


Polygon


Rectangular Prism

Product	The result of multiplication.	
Pyramid	A 3-dimensional figure in which: — 1 face is a polygon and — all other faces are triangles.	 Triangular Pyramid  Square Pyramid
Quadrilateral	A polygon with 4 sides.	
Quotient	4 is called the quotient of 12 ÷ 3. See *Dividend*.	$12 \div 3 = 4$
Radius	See *Circle*.	
Rectangle	A parallelogram with angles which are right angles.	 Rectangle
Rectangular Solid	A rectangular prism. See *Prism*.	 Rectangular Solid
Regular Polygon	A polygon with all sides equal and all angles equal.	 Regular Hexagon
Remainder	See *Dividend*.	
Rhombus	A quadrilateral with all sides of equal length.	 Rhombus
Row	Items arranged in a horizontal line.	

Scalene Triangle	A triangle with no 2 sides equal.	 Scalene Triangle
Set	A collection of things.	
Shape	A figure and its interior.	
Solid	A 3-dimensional figure (*not* including its interior points).	
Sphere	The set of all points in space at a fixed distance (radius, r units) from a given point (centre, C).	 Sphere
Square	A rhombus with interior angles right angles.	 Square
Square Centimetre (cm^2)	A unit of area.	
Subtraction	The inverse (undoing) operation with respect to addition. *Addition* (doing) $3+5=8$ *Subtraction* (undoing) $8-5=3$	
Sum	The result of adding.	
Tangram	An ancient puzzle.	
Temperature	A measurement of heat.	

Tenth	One tenth can be expressed as 0.1 or $\frac{1}{10}$.	
Tetrahedron	A triangular pyramid.	 Tetrahedron
Tesselation	An arrangement of geometric shapes that would cover (tile) a plane.	 Tessellation of Parallelograms
Thermometer	An instrument to measure temperature.	
Tiling	See *Tesselation.*	
Trapezium	A quadrilateral with 1 pair of opposite sides parallel.	 Trapezium
Triangle	A polygon with 3 sides.	
Triangular Prism	A 3-dimensional figure in which: — 2 bases are triangles, — the other faces are parallelograms.	
Vertex (of a Polygon)	The point of intersection of adjacent sides of a polygon. (Plural: vertices)	
Volume	An amount of space.	
Year (a)	A unit of time. 1 a = 365 d	

DATE DUE

OCT 20 '81
OCT 20 '81
DUE EDUC OCT 26 '81
RETURN OCT 26 '81
DUE EDUC MAR 8 '82
RETURN MAR 8 '82
DUE EDUC MAY 11 '82
RETURN MAY 9 '82
DUE EDUC FEB 3 '83
RETURN FEB 2 '83
DUE EDUC MAR 3 '84
MAR 3 RETURN
DUE EDUC NOV 18 '84
NOV 15 RETURN
NOV 29 '84
NOV 30 RETURN
MAR [illegible]

EDUC MAR 2 [illegible]
DUE EDUC MAR [illegible] P
MAR 30 RETURN
DUE MAR 25 '88
APR 01 RETURN
DUE EDUC OCT 17 '86
OCT 15 RETURN
DUE EDUC MAR 30 '87
APR 01 RETU[illegible]
DUE EDUC MAR 11 '88
MAR 11 RETURN
DUE EDUC MAR 13 '89
MAR 07 RETURN

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